TRAVELS

THROUGH THE

SOUTHERN PROVINCES

OF THE

RUSSIAN EMPIRE,

IN THE YEARS 1793 AND 1794.

TRANSLATED FROM THE GERMAN OF

P. S. PALLAS,

COUNSELLOR OF STATE TO HIS IMPERIAL MAJESTY
OF ALL THE RUSSIAS, KNIGHT, &c.

IN TWO VOLUMES.

VOL. I.

WITH MANY COLOURED VIGNETTES, PLATES, AND MAPS.

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MDCCCII.

EXPLANATION of the PLATES and VIGNETTES contained in the Firſt Volume.

Plate I. Repreſents a peculiar ſpecies of the domeſtic Cat, deſcribed p. 48. The upper part of the engraving exhibits the coat of arms belonging to the town and diſtrict of Mokſhan, with the two battle-axes of the Mordvines alluded to p. 50.

Plate II. Repreſentation of *Strelnic-Gory*, or the ſandy rocks forming the bank of the Volga, above Dubofka, p. 74.—In front of it is the river, on which a fiſhing-boat appears navigated by oars and ſails.

Plate III. View of the Colony of Sarepta, on the banks of the Sarpa, from its weſtern ſide; as deſcribed, p. 99. and following.—In front is repreſented what is called the "Vorwerk," or Farm; at a diſtance appear the iſlands formed by the Volga in its courſe; and which are covered with wood.—Between the letters *a* and *b* are ſituated the church as well as the houſes inhabited by the Moravian ſiſters and brethren;—*a*, denotes the houſe of the ſuperintendant or governor; *b*, the houſe appropriated to the widows; *c*, the market-houſe; *d*, the inn; *f*, the brewery; *g*, the garden-grounds; *i*, tents covered with felt, in the manner practiſed by the Kalmuks, and which afford ſhelter to herdſmen; many of whom have acquired the German language by their intercourſe with the coloniſts.

Plate IV. Exhibits a common Kalmuk, with a rifle-gun over his ſhoulder, and a horſe-whip in his hand; and likewiſe a Kalmuk Prieſt, or *Gellong;* as deſcribed p. 117.—In the back-ground are repreſented tents, or temporary felt-huts, inhabited by that nation.

Plate V. A Kalmuk houſewife and girl, in their national dreſs, alluded to in the page laſt mentioned.

Plate VI. A rural encampment, or what is by the natives called, *Aul*, of the Kundure Tartars, who lead a wandering life on the banks of the Akhtouba: where the huts are alternately conſtructed in the Tartar and Kalmuk manner; the former of which are placed entire on two wheeled chariots, and the latter may be disjoined or taken to pieces. At the ſame time, there is a repreſentation of the covered chariots excluſively devoted to females; and, in the back-ground, of the ſepulchral monuments erected by the Nagays.—The other objects delineated in the plate are evident on inſpection: See farther the account given, pp. 172 and following.

Plate VII. Repreſents a woman and a girl of the Kundure Tartars, (pp. 174 and 175,) in their national *coſtume.*

Plate VIII. An outline of the idolatrous ſhrine, or floating Pagoda, before which the Indians reſident at Aſtrakhan daily perform their evening prayers: the names of the idols are ſpecified in the account give pp. 254, 257, and following of the text.

Plate IX. Exhibits a view of the congregation of thoſe Indians engaged in ſolemn prayer: an explanation of this ſubject is likewiſe given in the pages laſt mentioned.

Plate X.

Plate X. Repreſents a Trukhman or Turcoman with his bow, quiver, and whip, with which he is uſually furniſhed in his excurſions on horſeback.—See pp. 298 and following, as alſo p. 306.

Plate XI. Plan of Greater or Upper Madſhary, ſituated between the Bybala and Kuma.—The deſcription of this engraving is ſcattered from p. 312 to 316, &c.

Plate XII. A South-Weſt View of four Tartar Chapels or Vaults for Burials, belonging to Great Madſhary.—In front, there is a repreſentation of the agricultural implement called *Ralo*, and which is employed by the boors or farmers on the banks of the Kuma; in order to break up arable land that had been ploughed in the preceding years:—the back-ground exhibits a view of the low country abounding in wood, on the banks of the Kuma.—See p. 328.

Plate XIII. A ſeparate repreſentation of the ſecond ſtructure delineated in the foregoing landſcape.—See p. 329.

Plate XIV. Plan, Elevation, and Section of the Tartar Chapel which formerly ſtood in the vicinity of Maſslof-Kuut; and which, in general, reſembles the ancient edifices erected by the Tartars who inhabited thoſe regions.—See p. 336.

Plate XV. View of the whole ridge of mountains covered with ſnow, and forming part of Mount Caucaſus, from the great Elburus which fronts the Black Sea, to the vicinity of the Caſpian; drawn in September, when part of the black mountains was already covered with freſh ſnow or rime. In front of the Plate, is repreſented a baſtion of the fortreſs of Georgieſſk; then the low woody country of the Kuma;

a ſuburb or out-part of Georgieſſk; and, at a diſtance, the immenſe plain extending to the foot of the Caucaſus. —p. 340.

Plate XVI. View of the ſituation of the acidulous mineral ſpring, denominated the *Well of Alexandrof*. *A.* the ſource of the ſpring, together with its channel flowing into the rivulet Aſada (which, in the text, is called Khoſada); *B.* the marſhy place where the Aſada could be conveniently conducted into the Elkoſhu; *C.* the height where the camp is uſually pitched for the accommodation of thoſe who viſit this medicinal well; *D.* Abaſſian villages inhabited by the tribe of Dſhentimir; *E.* calcareous mountains riſing toward the river Malk, and producing a great profuſion of herbs; *a*, *b*, places where the hard tophus is interſperſed with leaves and other parts of plants; *F.* the ancient ramparts,—pp. 347 and following, as likewiſe pp. 367 and 368.

Plate XVII. Mount Metſhuka, together with the adjacent inferior mountains fronting it; being divided longitudinally; and conſiſting of a ſpecies of tophus: at the extremity of this elevation, there is a ſulphureous bath, the water of which is abſorbed in the plain. At a diſtance may be ſeen the ſummits of the Beſhtau, or the mount with five heads.—pp. 358 and 368.

Plate XVIII. A Circaſſian of diſtinction in his ordinary domeſtic dreſs; and a princeſs of that nation: in the back ground are Circaſſian houſes; and natives on horſeback and on foot.—p. 398, and ſee alſo the preceding page.

Plate XIX.

Plate XIX. A Circaſſian Prince or Nobleman in full accoutrement, and provided with arms, a white jacket over his coat of mail, the bow and quiver; and being ready to mount his horſe: likewiſe a common Circaſſian dreſſed in a cloak or mantle uſually worn in rainy weather; and furniſhed with a ſabre and a club mounted with iron, which are their conſtant weapons on their excurſions. In the back ground are repreſented tombs of that nation, p. 400 and following.

Plate XX. A Circaſſian Nobleman in his complete accoutrements and arms, on horſeback. In the back ground are Circaſſian dwellings, pp. 401 and 397.

Plate XXI. A delineation of the principal races of Circaſſian and Abaſſian horſes:—*a* repreſents the whole hoof together with the character which is burnt in the right hip of thoſe animals deſcended from the race of *Shalock*, being the nobleſt of the horſes bred in the great Kabarda; and the progenitor of which, according to an old tradition of the Circaſſians, has originally riſen from the Ocean; *b*, is the ſign of the Circaſſian race *Tram*; *c*, of *Miſoſt*; *d*, of *Aſlangir*; *e*, of the Abaſſian race *Dſhantemir*; *f*, of *Shabulat*; *g*, of *Markhan*; *h*, of *Marguſh*; *i*, of the Perſian race *Tſhepalau*; *k*, of *Bekgan*; *l*, of the Abaſſian race *Lof* or *Lou*, burnt in the right hip; *m*, likewiſe of the Abaſſian race *Dudaruk*, burnt in the left; *n*, of *Tabii*; *o*, of *Kurtat*; *p* and *q*, of a race with which I am unacquainted, but bearing the latter ſign on the ſhoulder; *r*, of *Kuralai*, on the hip; *s*, of *Kaſanukh*; *t*, of *Kudinet*; *u*, of *Aſlanſhukh*; *v*, of *Mat*; *w*, of *Anſur*; *x*, of *Afonbukh*; *y*, of *Sakhokh*; *z*, of *Karanuk*; *a* 2, and *b* 2, of races, the names of which I could not learn; *c* 2, of *Babuk*; *d* 2 is unknown; *e* 2, of *Tſunpa*;

Tſunpa; *f* 2, of *Tyſh*; *g* 2, of *Dſhangot-Tarkhanoff*; *h* 2, of *Seko*; *i* 2, of *Khataſuk*; *k* 2, of *Koſh*; *l* 2, of *Martaſa*; *m* 2, of *Shenebata*; *n* 2, of *Yaſik*; *o* 2, of *Mudon*; *p* 2, of *Khoſtſh*; *q* 2, of *Khot-dal*; *r* 2, of *Aſtemir*; *s* 2, of *Kelemet*; *t* 2, of *Khaſkukai*; *u* 2, of *Shomakhu*; *v* 2, of *Delel*; *w* 2, of *Eſhkot*; *x* 2, of *Eſhiſh*; *y* 2, of *Yaruik*; *z* 2, of *Yendyr*; *a* 3, of *Kandruk*; *b* 3, of *Kutſhuk*; *c* 3, of the Abaſſian race *Tramkt*; *d* 3, of *Shabaſgeeri*; *e* 3, of the beſt and talleſt race of Abaſſian horſes; *f* 3, of *Tſhikhen*. —p. 412.

Plate XXII. Two Inguſhians; one of whom is repreſented with his fire-arms or muſket (apparently in a caſe, ſuſpended over his left ſhoulder), together with a dagger and ſabre; the other, with the uſual ſhield, and a ſhort pike on which the gun is levelled, when taking aim.—p. 436.

Plate XXIII. A matron in the national dreſs worn by the wives of the Kozaks, and a girl of Tſherkaſk.—p. 474.

Plate XXIV. Repreſents a lady of diſtinction among the Nagays; in the middle of the group is a princeſs of that nation, attended by a female ſlave.—In the back-ground appear tents conconſtructed of felt, and *arabas* or two-wheeled carts.—p. 534.

Plate XXV. View of the Fortreſs and the Roads of Taganrog; drawn from the country-houſe of the governor: in front, are repreſented a plantation of mulberry-trees, a grove of willows, and the wharf:—pp. 484 and 485.

EXPLANATION

EXPLANATION of the VIGNETTES.

No. 1. (p. 3.) A winter landſcape, repreſenting four very large ſepulchral hillocks *(tumuli)* contiguous to each other in a wood, near Lake Vertanetz: many ſimilar elevations are ſcattered on the heights of Valda.—pp. 4 and 5.

No. 2. (p. 88.) A detached view of a birch-foreſt, the trees of which were partly broken by the weight of rime and other congelations on their tops; partly bent down into the ſnow; ſuch as were obſerved in the ſpring of 1793, in the diſtrict lying between the rivulets Tſhardym and Kurdyum, in the government of Saratof.—pp. 55 and 56.

No. 3. (p. 89.) A pillar of horſes' ſculls and jaw-bones erected by the Kalmuks, on a ſand-hill near the Akhtouba, to commemorate a deſtructive epidemic, that had prevailed among thoſe animals.—pp. 171 and 172.

No. 4. (p. 107.) Profiles: 1, of a Mongolian girl; 2, of a young female Kalmuk; and 3, of a youth of the Nagay-tribe.—pp. 117 and 118.

No. 5. (p. 279.) Repreſentation of the manner in which pheaſants are taken by means of gins, in the ſedgy thickets, on the banks of the Kuma and Kuban.—See the deſcription, p. 316.

No. 6. (p. 338.) A ſepulchral chapel of the Mahometans at Great Madſhary; being that ſtructure, which in the XIIth plate is repreſented as the moſt diſtant, and the architecture of which differs

differs from the others; though its periſtyle is already decayed. —pp. 328 and 329.

No. 7. (p. 339.) Circaſſian tombs belonging to the family of Prince Dſhambulat, in the vicinity of the river Bakſan.—p. 376.

No. 8. (p. 380.) Planimetrical delineation of Mount Burg-uſſan near the Podkuma; and which appears to have formerly been a fortified place.—p. 345.

No. 9. (p. 381.) A ſepulchral monument of a Circaſſian princely family, near the top of a mountain, between the ſources of the brook Kurai and the river Malk. The ſtone fronting the chapel at ſome diſtance, bears an inſcription in the Tartar language; the chapel itſelf is of an heptagonal form, about 13 feet high; and at the ſide of its window, there is a large man's hand imprinted in the mortar.

No. 10. (p. 444.) Repreſents a Circaſſian and an Inguſhian Bee-hive. —p. 412.

No. 11. (p. 445.) *a*, *b*, *c*, *d*, four male ſtatues; and *e*, *f*, two female figures hewn in ſtone: ſimilar images are frequently met with on the ſteppe between the rivers Donetz and Dniepr, as likewiſe between the Don and the Kuban, eſpecially on ſepulchral hillocks. They probably originate from the Huns or Hunnians; and it is remarkable that the ſtatues of this deſcription, ſituated to the Eaſt of the river Don, are executed by a much ruder hand.—p. 458 and 459.

No. 12. (p. 508.) An Armenian windmill, with horizontal wings; ſuch as are very common in Taurida.—p. 478.

No. 13 and 14. (pp. 509 and 541.) Repreſentations of the ſtrata of granite and granite-ſchiſtus, on the banks of the rivulet Berda; and which conſiſt of very ſingular proportions: the farther explanation of this ſubject will be found in the text, pp. 521 and 522.

NOTICE RESPECTING THE MAPS.

As the completion of the different travelling maps required a longer period of time than the printing of the firſt volume in the original German edition, they have neceſſarily been delayed till the publication of the ſecond; and they will contain:

1. The country of the Lower Volga, with part of the Caſpian Sea and thoſe extenſive plains or ſteppes, ſituated between the latter and the Sea of Azof.

2. The mountains of Caucaſus between the Caſpian and Black Sea; and,

3. Taurida, with its adjacent plains that ſurround the Sea of Azof and the Black Sea on their northern coaſts:—the whole being ſo arranged that theſe three maps form one connected ſeries.

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ERRATA.

In the current title of page 361, *for* "the Lines of the Caucaſus" *read* "Journey along the Caucaſus."

In the head-lines of page 362 to page 367, *for* "Journey from "Aſtrakhan to the Lines" &c. *read* "Obſervations made during "a Journey along the Caucaſus."

Page 368, *for* "Journey from Aſtrakhan to" *read* "Obſervations "made during a" &c.

Page 458, line 3 from the bottom of text, *for* "female" *read* "male."

conciſe ſurvey of the Crimea in the French language, yet this pamphlet by no means renders a more detailed account of it ſuperfluous; from which, at length, the natural condition, the advantages of ſoil and ſituation, as well as the hiſtory, of that ſmall, but ever memorable, peninſula may be ſufficiently elucidated.

Many new ſpecies of plants and inſects have been diſcovered during this long journey; but, as the ſyſtematic deſcription and repreſentation of theſe objects are more immediately connected with the completion of the Author's botanical and zoological works, they have in theſe Travels only been incidentally mentioned. He is, at preſent, alternately employed in arranging thoſe ſubjects, as far as his valetudinary ſtate will permit; and, if his life ſhould be ſpared for a few years, he hopes thus to bid his laſt farewell to the literary world, which, he is ſenſible, has beſtowed on him a greater ſhare of approbation than he ever flattered himſelf to deſerve:

" But the time of my departure is approaching
Nigh is the hurricane that will ſcatter my leaves!
To-morrow, perhaps, the wanderer will appear—
His eye will ſearch for me round every field,
And will—and will not find me."—OSSIAN.

Cujus undenum trepidavit ætas
Claudere luſtrum——

HORAT. Epod. ii. 4.

THE AUTHOR'S PREFACE.

THESE obſervations were collected during a journey, which the Author undertook in the years 1793 and 1794, by ſpecial permiſſion of her late Imperial Majeſty, for the recovery of his health: they appeared to him worthy of being laid before the Public; as they may tend to ſupply deficiencies in his former Travels, performed in the years 1768 and 1769, while they will exhibit a view of the changes which have taken place ſince that period in ſeveral diſtricts; and likewiſe afford more correct information reſpecting ſuch provinces of the extenſive Ruſſian Empire as have not hitherto been viſited, or deſcribed, by travellers. Hence, he truſts, the indulgent Public will receive this work with that partiality which his former "Travels" have experienced; eſpecially as he has ſtudiouſly omitted every trivial circumſtance, and inſerted in his Journal only the minutes of thoſe facts, which have eluded the attention of other obſervers.

The *ſecond part* of theſe Travels will contain a deſcription of the Tauridan peninſula, commonly called the Crimea, and will be embelliſhed with various perſpective views of that delightful country. And, though the Author has formerly publiſhed a

THE TRANSLATOR'S PREFACE.

AMONG the different works which have lately appeared in an Engliſh dreſs, from the prolific German pen, there are few which poſſeſs an equal ſhare of merit with the preſent Travels; though originally written in an uncouth and almoſt barbarous ſtyle.

The illuſtrious Author has ſpent the greater part of his uſeful life in Ruſſia, where the German language is indeed often ſpoken at Court, as well as among the learned and merchants; but the different *German* works, printed in that country, bear evident marks of being compoſed in a foreign climate. Such is particularly the caſe with Profeſſor Pallas's Travels, both the former and the preſent, which ought to have been carefully reviſed by one of his literary friends at Leipzig, before they were committed to the preſs. Thus, the taſk impoſed upon the Tranſlator might have been rendered eaſy and pleaſant; it would have ſaved him many valuable hours which he has reluctantly waſted in unravelling the Author's perplexed and ſwollen periods; or, in aſcertaining the exact meaning of his obſolete phraſes. On comparing the German, or even the French with the Engliſh edition, the intelligent reader who is converſant with thoſe languages, will readily admit the juſtice of

of theſe remarks.—Nor would the Tranſlator have deemed it neceſſary to inſert an apology of ſo humiliating a nature, were he not perſuaded that, under circumſtances ſimilar to thoſe in which the celebrated traveller was placed by a bountiful Sovereign, more labour and induſtry ought to have been beſtowed on one of his laſt literary performances.

On the other hand, the diſtance at which the Author reſides at preſent, being too great * to admit of regular epiſtolary communications, the Tranſlator has occaſionally been obliged to apply for explanations of obſcure paſſages to thoſe literary friends in London, who were perſonally acquainted with Profeſſor Pallas, during many years reſidence at St. Peterſburg. Nevertheleſs, the liberal Critic will find frequent opportunities of ſubſtituting indulgence for ſeverity, in his ſtrictures.

There is another circumſtance, relative to the ſpelling of proper names of perſons, towns, rivers, mountains, &c. abounding in this work; and of which the reader ought to be duly apprized.—The Author has throughout adopted the orthography of German writers, who in a manner tranſlate the *ſounds* of the Ruſſian alphabet into their native language; becauſe the numerous conſonants prevailing in the former, and which are expreſſed by peculiar characters, cannot be accommodated to the letters uſed by the Germans, or any other European nation. Hence it was neceſſary to employ thoſe

* Kherſon in the Crimea.

ſyllables,

ſyllables, the ſound of which bears the neareſt reſemblance to the Ruſſian pronunciation of ſuch names: and thus it happens, that conformably to the different modes of pronouncing, the ſame word will be found variouſly ſpelled in the German and Engliſh editions. This difference, however, could not rationally be avoided; for inſtance, if the word "Tzaritzin" had been written "Zarizin," and pronounced accordingly by a native of Britain, no Ruſſian could have deciphered its meaning.

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TRAVELS

INTO THE

SOUTHERN PROVINCES

OF THE

RUSSIAN EMPIRE,

IN THE YEARS 1793 AND 1794.

Journey from St. Peterſburg to Tzaritzin.

SOLICITOUS to remove from the inceſſant buſtle, as well as the artificial ſociety prevailing in the metropolis of the Ruſſian Empire, I applied, towards the end of the year 1792, to our late gracious ſovereign the Empreſs Catharine II. for permiſſion to viſit the Southern provinces of her vaſt empire; partly with a view to recover my former ſtate of health, partly to purſue my general obſervations on phyſical ſubjects, and to complete my collection of botanical drawings. With this intention I engaged a ſkilful artiſt, Mr. C. G. H. Geiſsler, of Leipzig, who accompanied me on the whole journey.

My requeſt was granted, together with Her Majeſty's letters of recommendation to all the governors of thoſe provinces in which I propoſed to make any conſiderable ſtay. Thus encouraged,

couraged, I left St. Peterſburg at two o'clock in the morning on the firſt of February, 1793, accompanied by my beloved wife and daughter; to enjoy with them the firſt beauties of ſpring, on the ſouthern banks of the Volga.

The winter-road through the extenſive foreſts of the low woody plain beyond Novgorod was uncommonly good; but upon the ſtratified mountains, called the heights of Valda, it was, as uſual, worſe; and we found it extremely rough and dangerous on the heights towards the Tvertza and the Volga, as well as in the vicinity of Moſco; where the numerous caravans paſſing every year contribute to break it up. This happened to be the caſe in the preſent winter, on account of the unuſual depth of the ſnow, drifted in mild weather by the wind, which rendered the road almoſt impaſſable. Hence, during our journey to Moſco, we were in continual danger of being overturned; the irregular and deep tracks of the road retarding us ſo much, that although the diſtance from St. Peterſburg is only ſeven hundred and twenty-eight verſts, it required a journey of almoſt ten days; an unuſual length of time for the expeditious mode of travelling in that country.

The weather had been unuſually mild during winter, ſo that we arrived at Moſco on the commencement of the thaw.—On the night of the 22d of February we reached Novgorod, having obſerved, in a duſky quarter of the horizon, an *Aurora Borealis*, which diffuſed a very clear, radiant light, extending North-Weſt, and more faintly North-Eaſt, with an intermediate ſpace unillumined.

The ancient ſepulchral hillocks (*tumuli*) on the heights of Valda attract the eye of the traveller, particularly in winter, when

when the whole ſurface is covered with ſnow; they are ſtill more conſpicuous on the heights near the rivulets Cholova and Polomet, preſenting, with the tall fir-trees growing on their tops, an uncommonly pictureſque winter landſcape: one of theſe hillocks is repreſented in a vignette prefixed to this work.—On the heights between the rivulet Cholova and the lake Vertanetz, I diſcovered the firſt ſepulchral hillock worthy of notice, two verſts from the little village Bolotnitza, ſituated near the Cholova. The three larger hillocks of this group appear almoſt in a line from North to South. About the diſtance of a verſt northwards, the lake Vertanetz takes its riſe; it is ſurrounded by fir-trees like a garland, and empties itſelf into the Cholova, which unites at length with the river Mſta. Theſe hillocks which we paſſed, were on the left of the winter-road.

On a riſing ground which we gradually aſcended, a ſhort diſtance farther to the ſouthward of the lake, and on the right of our road, about one verſt from the village Rachino, we met with the four hillocks repreſented in the vignette, and which, together with the tolerably large fir-trees and underwood, formed an appearance much too pictureſque to paſs unnoticed. Thoſe on the northern and ſouthern ſide were the largeſt; and ſeveral other ſepulchral hills were ſcattered on the coaſt of the lake Vertanetz, but inacceſſible, on account of the deep ſnow with which they were covered.

Beſides theſe, we obſerved on the heights near the village Somenka, ſix ſmaller ſepulchral hillocks, irregularly ſcattered, having alſo a very pleaſing effect on the eye: and on the moſt conſpicuous height, behind which we croſſed the river Polomet that flows through an abrupt dale, our attention was again engaged

engaged by a ſolitary hillock, larger than the others, and ſituated near the road.

Theſe hillocks of interment, for notwithſtanding their magnitude they cannot be conſidered as the productions of Nature, are generally raiſed on the ſummits of mountains, exhibiting a moſt airy and beautiful proſpect: and I have likewiſe obſerved in Siberia, that the ancient cemeteries are invariably in the moſt pleaſing ſituations. It were much to be wiſhed, for promoting the knowledge of the antiquities of Ruſſia, that ſome of the landed proprietors would cauſe theſe venerable monuments to be carefully explored, ſo that their diſcoveries might be communicated to the world.

The ſtrata of coal diſcovered in theſe regions, ſince the year 1763, have not yet afforded a ſufficient ſupply for our metropolis, to render the importation of Britiſh coal unneceſſary. Nevertheleſs they excite the hope of accompliſhing that deſirable object; and though we have not yet been compelled ſeriouſly to adopt this reſource, it will probably be highly beneficial at ſome future period, as the price of wood is daily increaſing. There is, however, no doubt that much deeper ſtrata of coal muſt be diſcovered, before any real advantage can be derived from theſe mines.

After the lapſe of twenty years, it was highly gratifying to obſerve a conſiderable increaſe of commerce and wealth, greater population, and many well-finiſhed houſes in *Vyſhnoy-Volotſhok*; ſince made a country-town, and which, on account of the principal canals for facilitating the extenſive inland navigation of Ruſſia, is one of the moſt important places connected with the metropolis.

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The very ancient reſident city of the Grand Dukes of Ruſſia, *Twer*, (which, ſince my firſt journey has, like the town of Great-Novgorod, been completely metamorphoſed) I found ſo much improved, that it may now with propriety be ranked among the moſt elegant and regular provincial towns in Europe. It is happily ſituated in reſpect to its communication with other places; and enjoys all the neceſſaries of life in abundance, and at a moderate price. It is cuſtomary for travellers paſſing through this place to be regaled with delicious freſh ſterlets, caught in the river Volga, and at all ſeaſons kept in reſervoirs.

In *Torſhok* likewiſe I found a great increaſe of trade. The flouriſhing Baltic commerce, and the riſing price of the exported productions of the country, beſides all thoſe which it ſends to the metropolis, appear to have given new life to the induſtry of its inhabitants. But this circumſtance is ſo far unfavourable to the proſperity of the principal towns, as the mercantile advance of all the domeſtic and foreign articles of luxury, and the price of every ſpecies of manual labour riſing with the neceſſaries of life, are not in juſt proportion to the income of the wealthy.

Moſco has, during the laſt twenty years, not only been much improved in the magnificence of its buildings, and the refinement of taſte and manners, but the luxury of its inhabitants has alſo increaſed. The high price of all the neceſſaries of life, and the profuſion of dainties, (which, though formerly rather ſcarce in this great city, are now principally imported from foreign countries,) formed a remarkable contraſt with its ſtate at the time above-mentioned. Horticulture has within theſe few

years

years been brought to ſuch perfection, that all kinds of vegetables and fruits are in ſuperabundance; being the only productions of the country which are ſold cheap, and which probably will become cheaper every year. The largeſt ſhoots of aſparagus are reared here in the midſt of winter in hot-beds, and in ſuch plenty that they are tranſported to St. Peterſburg. Early fruit is neither ſcarce nor dear in Moſco: it is not inferior in flavour to that produced in England. In ſummer the moſt delicious ſpecies of cherries, apricots, peaches, pears, and apples, nay even ananas, are commonly ſold at a reaſonable price.—All theſe improvements, made ſince the year 1770, are chiefly the effects of indefatigable exertion. The numerous private orchards, kitchen-gardens, and hot-houſes lately eſtabliſhed by the nobility and gentry, have contributed much to the great abundance of vegetables.

It deſerves to be recorded here, that the late PROKOP AKIMFIEVITCH DEMIDOF, counſellor of ſtate, by his patriotic example, in importing, at his own expence, many foreign ſpecies of fruit-trees, and liberally beſtowing the treaſures of his garden, has been principally inſtrumental in promoting this beneficial branch of induſtry. The inland provinces of Ruſſia are alſo indebted to this beneficent man, for introducing ſeveral uſeful ſpecies of grain. But, alas! his ſpirit no longer animates the induſtry of the huſbandman; his beautiful botanic garden, which I deſcribed in the year 1782, is now deſolate; the ſcarce and valuable plants which he had procured at a great expence from England, and bequeathed to the Univerſity of Moſco, are ſhamefully ſcattered, inſomuch that ſcarcely a veſtige of his donation remains in its proper place.

Some

Some German gamekeepers have diſcovered truffles in the vicinity of Moſco, ſo that they are now ſold in the market, in a freſh ſtate, and at a very moderate price, throughout the ſummer.

Every object we behold in Moſco is, like the city itſelf, in a certain degree gigantic. Several palaces, in particular, are of a vaſt ſize, reſembling caſtles; and they are inhabited by hundreds of ſervants, who are born in a ſtate of vaſſalage. The foundling hoſpital is one of the moſt extenſive charitable inſtitutions in the world. Some of the country reſidences are planned, and the architecture is finiſhed, in a magnificent ſtyle. But the inſtitution particularly deſerving notice, is the new *Aſſembly-Houſe of the Nobility;* which during winter is viſited by at leaſt one thouſand perſons of rank, of both ſexes, who appear at the balls and maſquerades in very ſuperb dreſſes. This is undoubtedly the moſt numerous private aſſociation of the kind; and the grand aſſembly-hall is one of the moſt ſpacious rooms in Europe.

Several indiſpenſable arrangements for our journey detained us at Moſco till the 19th of February. During our ſtay in that city, the weather became ſo unuſually mild for the climate, that the deep ſnow in the ſtreets began to diſſolve, and we had the greateſt difficulty in driving with our ſledges, (the beams of which are covered with iron, the top forming the body of a coach,) through theſe almoſt impaſſable ſtreets, till we reached the open fields, where the ſnow ſtill covered the ground. I directed my journey by the way of Penſa, to Saratof.

In the night of the 19th we arrived at the firſt ſtage on this road, in *Novaya Derevna*, whence, without changing horſes,

we proceeded to *Bunkovaya*. On the following morning we continued our journey under a gentle fall of ſnow, which very much improved the road, that had been almoſt bare and unfit for ſledges. We arrived at Kirſhatſh, a village lately inveſted with the privileges of a town, where we paſſed part of the night. In this place, as well as at Bunkovaya, ſome ingenious peaſants, who had been employed as labourers in the ſilk manufactories at Moſco, ſome years ago eſtabliſhed looms and taught their art to others, with ſuch ſucceſs, that in both places a great number of ſilk handkerchiefs of various patterns, but of inferior ſize and quality, are now manufactured, and ſold at a moderate price, from one ruble * to a ruble and a half a-piece. The ſilk for theſe manufactures is brought from Moſco in a dyed ſtate. From this inſtance of an induſtrious diſpoſition, the facility with which the uſeful branches of domeſtic manufacture might be eſtabliſhed among the country people of Ruſſia is obvious; and this ſource of wealth could be conſiderably promoted, by erecting ſchools for the inſtruction of perſons who would voluntarily come forward to learn different trades. Among theſe, the manufactures of woollen and cotton ſtuffs, and hardware, are the moſt neceſſary for home conſumption, and to prevent the importation of foreign merchandize. Such manufactures could, by proper encouragement, be gradually improved, eſpecially if, in the beginning, ſome peculiar privileges were granted to the

* The real value of a ruble, by the courſe of exchange at St. Peterſburg, varied, in the year 1797, from two ſhillings and three pence one farthing, to two ſhillings and eight pence halfpenny. See Mr. Tooke's "*View of the Ruſſian Empire.*" 1799. Vol. iii. p. 617.

manufac-

manufacturer, for inſtance, exemption from military ſervice, or other perſonal immunities.

On the 21ſt we proceeded on our journey to *Valdimir*, under an inceſſant but light fall of ſnow: and towards the evening we arrived at this ancient grand-ducal reſidence, which is now the ſeat of a provincial government. I have formerly ſpoken much in praiſe of this town, both for its healthful ſituation and delightful environs. At preſent it appears to ſtill greater advantage, being embelliſhed with many modern houſes built of ſtone, and ſeveral good dwellings of wood, which, at ſome diſtance from the town, attract the eye of the traveller, particularly on the heights beyond the river Kliaſma. It is, however, to be regretted, that, from its ſituation in a ſandy country, thinly inhabited, and for want of manufactures and commerce, this town, though in other reſpects both pleaſant and conſiderable, will ſcarcely ever be raiſed to a flouriſhing ſtate.

The preceding thaw had rendered the ice on the river Kliaſma ſo unſafe, that we diſcovered innumerable flaws, and that it could not bear the horſes on the oppoſite bank. On alighting, with my travelling companions, and while I was endeavouring to conduct them to the bank, I had the misfortune to fall as deep as my loins into a fiſſure which was covered with drifts of ſnow. As there were no houſes on the bank, and it was ſtill more dangerous to repaſs the river, I was under the painful neceſſity of proceeding in wet clothes on the long ſtage of thirty-ſeven verſts, (about twenty-five Engliſh miles,) to the recently privileged county-town of *Sudogda*; which, however, poſſeſſes few advantages over a village. The bad effects of this accident, with reſpect to my health, did not appear till the ſubſequent ſpring;

and they have laid the foundation of a diſeaſed and valetudinary life. On the ſame day, being the 22d, we arrived in the vicinity of *Murom;* and on the 23d paſſed in ſight of that town, and travelled as far as *Lomova.* The warm ſandy ſoil being thinly covered with fir-trees, had ſcarcely any ſnow left; and the ice of the river Okka, over which we were neceſſitated to venture our lives for twelve verſts, to *Lipna*, had already become extremely unſafe, eſpecially in the vicinity of the town, where many breaches had been made for waſhing leather, woollen and linen yarn manufactured in that place.

Late in the evening of the 24th of February we reached *Arſamas;* after having croſſed, with ſome danger, the ice on the river *Teſha.* The ſoil, which had been ſandy for ſeveral miles, near Lipna at once changed into a black, rich, arable land, occupying all the plains and downs; both being peculiarly favourable to the cultivation of hemp. Innumerable bundles of that plant were ſpread out in the open air, in the vicinity of the villages where, during the winter, it is dried in kilns.

The town of Arſamas appears to have increaſed in trade, but it has not been improved in its buildings. The narrow and irregular ſtreets, and the antique Ruſſian dwelling-houſes built of wood, are ſtill the ſame as I formerly obſerved. A few rows of ſale-ſhops have lately been erected of ſtone, on the market-place, near the caſtle. In the ſtreet leading from the river Teſha to the market, the eye is engaged with the venerable appearance of an ancient church, the ſteeple of which has almoſt loſt its equilibrium towards the ſtreet, while, on the oppoſite ſide, the body of the church appears to have conſiderably ſunk towards a neighbouring glen.

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The pot-aſh manufactories of this place, which I formerly deſcribed, have ſeveral years ago been relinquiſhed, on account of the inſufficient profits they afforded to government. The crown-officers expected to render them as profitable as they had formerly been, when managed by AVERKI KIRILOF, a very ſkilful and active manufacturer of pot-aſh. He firſt introduced this branch of induſtry into the Ruſſian foreſts, by engaging expert workmen from Poland, who underſtood the burning of pot-aſh after the Hungarian manner. But the more extenſive eſtabliſhment, the greater number of peaſants employed by government, and the ſalaries of officers, increaſed the price of the crown-manufacture ſo much, that the buſineſs was abandoned; and the peaſants have ſince been employed in attending the imperial ſtuds.

From Arſamas, the country along the river Teſha progreſſively becomes more hilly, with an excellent black ſoil, which extends through the remaining part of the government of Niſhnè-Novgorod, and the whole province of Penſa. On the oppoſite ſide of the Teſha, the country is more mountainous; the projecting heights diſplay, in various ſlips, precipitated ſtrata of reddiſh clay, and are more woody than the banks of the river along which we travelled. Before we reached the village *Net-ſhoëva*, we were obliged to re-paſs the Teſha, and travel over a fertile plain, varied with gentle elevations, and interſperſed with handſome villages, till we reached *Lukoyanof*, formerly a village, but now enfranchiſed as a town. During the night of the 25th we reſted in this place.

On the following day we traverſed an open country, interſperſed with gently-riſing elevations, and of a moſt fertile ſoil,

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to *Tolſkoi* and *Vaſilef-Maidan*. Theſe two villages were formerly much employed in the manufacturing of pot-aſh, and are now peopled chiefly by fugitive ſubjects of the nobility. No man is ſubject to ſo many different ſenſations as a traveller. I could not help feeling great indignation, when I obſerved here, in every direction, the remains of large oak foreſts in a deſolate ſtate, and productive only of indifferent bruſh-wood, growing out of the remaining ſtubs of thoſe magnificent trees. All the timber, and the wood uſed for wheels, carts, and the implements of agriculture, are furniſhed by the oak; nay, every gate of the moſt wretched farm-yard requires two of the thickeſt and ſtraiteſt oak-trees, cut down by the Ruſſian boor, without the leaſt heſitation, as he is inſenſible to their more important uſes. Wherever I turned my eyes, I diſcovered numbers of broad and thick oak planks, two of which only are uſually ſawn from the trunk of one tree; and which theſe clumſy architects carry to the neighbouring town, where they are generally uſed for the flooring of rooms. On the whole road to Penſa we in every place found reaſon to complain of this unpardonable waſte of the wealth and pride of the foreſt.

We changed horſes in *Bogorodſkoë Selo;* and I obſerved that from the ſource of the Teſha towards the rivulet *Alatyr*, (on which is ſituated *Puſa*, one of the ſtages on this road,) the country gradually becomes more mountainous, and gives riſe to many brooks flowing through narrow channels, till they fall into the Alatyr, uniting with the ſmall river Inſara.

Throughout the government of Penſa, beneficent Nature has been liberal in beſtowing beautiful foreſts of oak; and on the banks of the rivulet Atma, and its collateral branches, I likewiſe

wiſe obſerved ſeveral young plantations belonging to the nobility, apparently in a vigorous ſtate, but ſomewhat too thick for producing full-grown timber. They extend through dales and over riſing grounds to a great diſtance; and afford true pleaſure to the patriotic obſerver. How mournful, on the contrary, is it to remark, in many other places, eſpecially in the vicinity of the imperial domains, that the young ſhoots of oak are cut down, and the ſtubs careleſsly left to produce ſhoots, the leaves of which are devoured by cattle; or, if left to themſelves, ſtifle each other by the excluſion of light and air, producing only inſignificant bruſhwood, inſtead of the parent tree. It would be an uſeful ſuggeſtion to the uncivilized and negligent country people of theſe diſtricts, to eradicate the ſtumps, which, on account of the deep ſnow, have been left ſtanding a conſiderable height above the ſoil; and to eſtabliſh nurſeries of oak from the acorn: although ſuch advice, if not enforced by a law, would probably be diſregarded. On the domains, particularly thoſe belonging to the crown, from which the admiralty obtains much and excellent timber for ſhip-building, proviſion ought to be made, that in buſhy grounds, or ſuch as are entirely cleared of wood, acorns might be planted, and ſecured from cattle by means of ditches: thus a new and promiſing ſucceſſion of timber would ſoon be obtained. Without this precaution, a general ſcarcity of tall oak trees is to be apprehended throughout this territory, which is naturally favourable to their production.

On theſe and ſimilar ſubjects connected with the ſcientific culture of trees, which has hitherto been altogether neglected in Ruſſia, I have, by order of government, in the year 1780, already

already expatiated. I have ſuggeſted the neceſſary propoſals for ſuch improvements as in my opinion were the moſt conſiſtent with the nature and conſtitution of the country, and which might ſerve as the baſis of a permanent regulation: extracts from theſe propoſals have ſubſequently been tranſmitted to all the governments of the empire.

In the ſmall town of *Saranſk*, we changed horſes about noon on the 27th. Notwithſtanding the trade it carries on by the manufactures of ſoap and leather, it does not appear to be in a ſtate of improvement. In this place, as well as in Penſa, and moſt of the villages of this neighbourhood, the ſmall Aſiatic moths (*Blatta Aſiatica*, by the Ruſſians called *Pruſſakee*,) have tranſmigrated from the Volga, and become very troubleſome. We met with them more commonly winged than without wings; and it is aſſerted that, everywhere, they drive before them and deſtroy the great moths (*Blatta Orientalis*, which more properly ſhould be called *Occidentalis*; as America is their native country). They are fond of aſſociating with the crickets, and if both are collected in a glaſs veſſel and placed upon ſnow, even in mild weather and ſunſhine, they become torpid, their bodies ſwell, and they ſeem to die inſtantly, but ſoon recover on being removed to a warm place.

Saranſk, where we arrived on the 28th in the afternoon, is one hundred and ninety verſts diſtant from Penſa. The whole country through which we paſſed, is embelliſhed with numerous villages, belonging chiefly to noblemen, and is one of the moſt fertile grain-provinces of the Ruſſian empire. The oak is here the moſt common ſpecies of wood; while the few foreſts of firs, in the rich, loamy ſoil, conſiſt only of crooked and ſtunted

trees

trees covered with branches from the ſurface of the ground to the top; and which never grow ſtraight, nor to any conſiderable height.

The birch and linden-tree delight in this ſoil, and flouriſh in great perfection: the former could be eaſily increaſed by ſeeds, and might be uſed for many purpoſes inſtead of the oak. The lime-tree of this country is very conducive to the general culture of bees, and might ſerve as the moſt proper tree for groves along the road. This plantation, which was ordered by government throughout the empire, and which had been effected for about two ſtages from Saranſk, is uſually ſo much neglected, or, if attended to, is done with ſuch ſapleſs and weak plants, that they ſoon wither away, as they are not planted deep enough in the ſoil, and neither ſupported nor manured. Hence the neceſſity of placing at leaſt three vigorous plants in every trench, and of making this in a dry ſoil, and ſo deep that it may be filled up till within about nine inches of the ſurface around it: in this manner more moiſture and ſhade would cheriſh the root. It is farther neceſſary to plant more than one row of trees on each ſide of the road, that they may afford mutual protection to each other.

Agriculture is moſt ſhamefully neglected in the government of Penſa; and the boors, though poſſeſſing the moſt fertile country of the empire, live in miſerable ſmoky huts, and in the moſt diſguſting ſtate of uncleanlineſs. Nay, I muſt confeſs, that the inhabitants of this diſtrict did not appear to me the moſt virtuous ſubjects of the crown; and their conduct towards the nobility, at the time of the rebellion excited by Pugatſhef, bears evidence of their depravity.

Notwithſtanding the numerous ſtuds kept by the nobility, horſes have, during the laſt twenty years, been advanced to double their former price, throughout Ruſſia; inſomuch that a common draught horſe, which was then ſold at fifteen rubles, is now valued at thirty or even thirty-five rubles. The boors of theſe diſtricts almoſt generally keep horſes which are but indifferent, and either of a middle or ſmall growth. Black-cattle are likewiſe under the middle ſize. Sheep, on the contrary, are here of a conſiderable ſize, and of the ſpecies with ſhort tails; their fleſh has an agreeable flavour; but the wool is of inferior quality, and generally black: in February they yean commonly two lambs. Every boor likewiſe rears hogs for his domeſtic conſumption; and in the winter ſeaſon the pigs, lambs, and calves, live in the ſame apartments with almoſt every family. All kinds of poultry are here of a large ſize; the geeſe are moſtly of a ſpurious breed from the Chineſe, or thoſe with a ſwan-neck: and in every village pigeons fly about in abundance.

The various ſpecies of grain which are principally cultivated in the government of Penſa, both for home conſumption and exportation, conſiſt of rye, ſpelt, barley, oats, millet, and buck-wheat. Notwithſtanding the abundance of thoſe ſpecies of grain, there are very few well-conſtructed mills to be met with; and inſtead of finding good bread in Penſa, we were generally ſerved with the worſt imaginable. Although the ſoil is excellent, we were informed that in moſt diſtricts wheat will not thrive; and that it is productive only in the vicinity of ſome villages inhabited by Tartars, in the lower countries of the Uſa. Attempts have lately been made to cultivate a ſpecies of oats, which by way of pre-eminence is called the prolific grain, or

Mnogo-

Mnogoplodnoi Owes. I have left with the farmers ſeveral ſpecies of oats for farther experiments. Hemp is likewiſe produced here, and converted to manufacturing purpoſes: and I have no doubt but that of the Chineſe and Bologneſe would flouriſh particularly well in this neighbourhood.

All grain is here placed in ſtacks near the villages, and beſide open threſhing-floors, till it is again ſeparated and dried in corn-kilns * for threſhing in winter: the ſtraw is thrown away, except what is uſed for the cattle and for thatching. In a ſimilar manner the dung in all theſe rich countries is caſt into pits and pools near the villages, and thus improvidently waſted; becauſe their fallows improve in fertility the ſucceeding year

* The Ruſſian corn-kiln, *ovin*, conſiſts of a wooden ſhed made of balks driven together, having a few apertures with ſhutters in the ſides, and furniſhed within with ſeveral croſs poles. Adjoining to the ſhed, an oven of brickwork is made in the earth, from which flues run into the kiln. When the corn is to be malted, the ſheaves are hung upon the poles, and a ſlow fire is kept in the oven, the ſmoke of which penetrates into the kiln, making the ſheaves to reek; the vapour eſcapes by the ſide-holes, which are opened at pleaſure. In ſome provinces the kiln is ſomewhat differently conſtructed; but the practice of malting the corn in this manner is univerſal, and is of great and various utility. The grains are indeed ſmaller for the drying; but it preſerves them from corn-worms, renders the grain fit for keeping in granaries, and even incorruptible in long voyages at ſea, without rendering it unſerviceable for ſowing. This advantage of the Ruſſian grain is, however, procured at a great expence of wood; for which, in ſome parts, perhaps, moſs-turf might be employed with the ſame effect. The corn being malted, it is carried by the Finns into the kiln itſelf, but threſhed out on the floor by the Ruſſians, or on the ice, with ſmall light flails, and purged by caſting or winnowing. The generality of countrymen keep their grain in the corn; only ſome of them grind all their rye immediately into griſt-meal. See Mr. Tooke's "*View of the Ruſſian Empire.*" 1799. Vol. iii. pp. 261, 262.

without manure, and new arable land is in great abundance. If the boors could be perſuaded to mix the dung they waſte with the aſhes of their hearths, with marle which is abundant here, and good black earth, ſo as to form beds of this compoſition on dry places, the production of nitre might eaſily be increaſed in Ruſſia. Perhaps this object could in ſome meaſure be attained, if the labour beſtowed on the manufacture of ſaltpetre were, according to a ſettled regulation, computed by the fathom, and allowed to the peaſants by a deduction from their arrears, or *Nedoimki*, due to the crown.—The crops of hay yield here from fifty to ſeventy poods * from the deſætttine †, or two thouſand four hundred ſquare roods.

The city of Penſa (ſix hundred and ſixty verſts from Moſco. and one thouſand three hundred and ninety-four from St. Peterſburg) ſurpriſed me in a very agreeable manner. By the kindneſs of the governor, Lieutenant-general STUPISHIN, we were accommodated in one of the beſt new-built houſes. When I viſited this place in the year 1768, it was then only a market-town, and I found it throughout built of wood, in a wretched and irregular manner, the churches excepted. Since the eſtabliſhment of the provincial government, many noble families have been induced to ſettle here, and to build ſtrong, beautiful manſions, diſpoſed in regular ſtreets, by which this city, notwithſtanding its hilly ſituation, promiſes to become one of the moſt flouriſhing places of its rank.

* A pood is forty pounds weight.

† A deſætttine is two hundred and ten Rheniſh feet broad, and five hundred and ſixty feet long, being 117,600 ſquare feet.

However

However thinly the town of Penſa is built, its ſituation on a height, watered by the Soura, and its numerous churches with their ſpires, give it a magnificent appearance. The inhabitants are evidently partial to commerce, which they prefer to every other kind of occupation. The ſhops are as well ſtocked here as at Moſco, which is not the caſe in other places. It may be preſumed that the colonies on the banks of the Volga, and the ſale of merchandize being promoted by travellers paſſing through this town, have contributed much to the increaſe of its trade.

The little rivulet of Penſa, which ſupplies a part of the town with water, falls into the Soura. The former, as well as the neighbouring lakes, abound with fiſh. All the ſmall kinds of fiſh found in the Volga, are likewiſe caught here; among which the ſharp-bellied bream, *Cyprinus cultratus*, is ſometimes taken, but ſeldom of a large ſize. The ſilures and ſterlets, a ſmaller ſpecies of ſturgeon, are caught only in the ſpring, when the waters are at their greateſt height. Jeſſes, *Cyprinus jeſſes*, as large as thoſe of the Volga, are alſo caught here; and blay of different kinds, ſuch as the *Cyprinus albur nus*, *ballerus*, *farenus*, and *vimba*. Neither lampreys nor the large kind of ſturgeon

*** As the author has frequently referred the reader to his former travels, firſt publiſhed in 1771; and as, without illuſtrative quotations from that publication, the preſent work would be imperfect with reſpect to information and perſpicuity; it has been deemed eſſentially neceſſary to inſert all thoſe paſſages which relate to the deſcription of particular places and countries, and to denote them by three aſteriſks. The title of the work before alluded to is: "Pallas's Phyſical Travels "through different provinces of the Ruſſian Empire, in the Years 1768 and 1769, "in German, four vols. quarto, with plates." St. Peterſburg 1771.

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are to be met with; but trout is caught in ſome branches of the Soura, where it runs near mountains.

In the government of Penſa, there are numerous diſtilleries of ſpirits from malt, which belong to the land-holders; a proof that there is a ſuperabundance of corn. Many noblemen keep conſiderable ſtuds. The land-holders have lately begun to dig for pyrites, which is very common in ſeveral parts of this country, eſpecially on the banks of the Volga. In the villages of Kourbulak and Saviælſhki, the latter of which belongs to the government of Simbirſk, two manufactories of vitriol have recently been eſtabliſhed.

The abundant pyrites found in this neighbourhood ſhould induce government to eſtabliſh ſeveral manufactories for the production of ſulphur and vitriol, which might be obtained in great quantities, to the benefit of the empire.

I could obtain no account of ores found in this government, excepting that in a few places, for inſtance, near the village of Lapukhofka, mines of iron have been diſcovered. Good mill-ſtones are quarried in different places contiguous to the village Permeyevo, near Sabacovo, on the oppoſite ſide of the Soura, and in the vicinity of Kimiſhk, a village built on the banks of the Ouſa, and inhabited by the Mordvines.—Vol. i. pp. 74, 75.

Penſa is ſituated at a ſmall diſtance from the left bank of the Soura; between the rivulet Penſa, which unites with the Soura, and two other ſmall rivulets, Shelakhovka and Moika, ſometimes called Guſno-Moika, partly at the foot and partly on the North-Eaſt ſide of an eminence near the junction of

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the Penſa and Shelakhovka. The eminence terminates in a precipice on the bank of the Penſa, and its perpendicular elevation is about fifteen or ſixteen fathoms above the bed of this rivulet. It riſes above the town, on the ſide of a ridge entirely covered with ſmall oak and birch-trees, and preſents fractured ſtrata of a loamy and often tripolitan ſand-ſtone, with which the inhabitants have begun to pave the ſtreets; and which, when broken ſmall on the road, form a ſolid pavement. The other ſtrata of this eminence conſiſt of clay or potter's earth, which, throughout the government of Penſa, is uniformly covered with a layer of the richeſt black mould, about two feet deep.

On the Northern ſide of the town, at the mouth of the Shelakhovka, there is a kind of new ſuburb, the building of which has lately been commenced, according to the plan adopted five years ago in Penſa. In this ſuburb wooden booths have been erected for the accommodation of dealers who attend the weekly market. The buildings in the town have been unremittingly continued ſince the imperial approbation of the plan above-mentioned. The principal ſtreet, and the great ſquare on the eminence ſituated about ten fathoms above the level of the river Penſa, together with ſeveral other ſtreets lying parallel with the former, have been marked out, and are already embelliſhed with many beautiful houſes: ſome of theſe are built of brick, in an elegant ſtyle of architecture. All the old houſes that are to be demoliſhed, muſt be rebuilt agreeably to the regulation, either of brick or wood; but, in the latter caſe, with a foundation laid of ſtone. — The beſt houſes already erected are contiguous to the principal place, on which ſtand

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the cathedral, and another church built of ſtone; the houſe of the governor, and oppoſite, but ſomewhat lower, two edifices appropriated to judicial proceedings; the houſe of the vice-governor, ſituated ſtill lower on the ſide of the hill; the houſe of the commander in chief; a public ſchool; and ſome dwelling-houſes with ſhops. I obſerved a ſtill greater number of ſhops in the principal ſtreet. Among the private houſes in various parts of the town, thoſe belonging to the families of Subof, and Tſhemiſſof, and the dwelling of Mr. Peterſon, the apothecary, are the moſt conſpicuous: the two laſt are adorned with beautiful gardens and hot-houſes.

Of eccleſiaſtical buildings, I obſerved at Penſa a very ancient monaſtery with two churches of ſtone, and a nunnery with two churches. Theſe ſtructures are ſomewhat lower than the cathedral, which was built in the year 1717; beſides theſe, there are four churches of ſtone and two of wood in the ſuburbs. The lower part of the town, on the oppoſite bank of the Penſa, conſiſts of old and indifferent buildings, as it is not included in the new plan, and is intended to be gradually demoliſhed. It is connected with the higher part of the town by a very decayed bridge; has a church of ſtone; and is commonly inundated in ſpring.

The ſtreets of the old town, which, in conformity to the new plan, have been made more ſtraight and convenient, are ſtill very irregular, on account of the hilly nature of the ſoil; and are extremely unſafe for thoſe who paſs through in carriages drawn by horſes unaccuſtomed to rough roads, inſomuch that in the ſtreet leading towards the Penſa the wheels muſt be clogged, to prevent accidents. Yet this high ſituation is favourable

able to the enjoyment of free and ſalubrious air, as well as to the uninterrupted paſſage of dirty waters from the town; though it would be a great improvement to have aqueducts, or ſewers, purpoſely formed round the town, to carry off the rain and ſnow-water from the hill above, inſtead of letting it flow through the ſtreets.

Immediately below the mouth of the rivulet Penſa, a bridge is built over the river Soura, leading to the Simbirſk road, through the mountainous and woody diſtrict of Troïtzk. Above the town and cloſe to the Penſa, near a cavern formed by the rain, there begins one of the moſt ancient lines of demarkation, which has been gradually raiſed againſt the encroachments of the Tartars. It conſiſts of a wall defended by a ditch, and extends from this place towards Verſhnei, and Niſhnè-Lomof, thence to Kerenſk, and onward to Tambof.

This line of defence is carried downwards, along the right bank of the Soura, to the mouth of the Inſa or Iſſa, where it joins a ſimilar and more ancient fortification, which has been erected from Simbirſk by the way of Yuſhanſk; Tagai, Karſun, Ureën, Pogoreloi, and Argaſh, to Surſk, and thence to Inſara, Saranſk, and Atemar.

Near the wall above mentioned, where the road interſects it, and leads to Saratof, there is a very extenſive botanic garden belonging to Mr. Peterſon, the apothecary; and on the oppoſite ſide are the brick-kilns eſtabliſhed for the building of the town.

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"About four or five verſts from Simbirſk begins the line of defence made in the reign of the Great Tzar ALEXIS

MIKHAÏLOVITCH, and which extends from the Soura to the Volga: it conſiſts of a high wall ſtrengthened by a deep intrenchment, and is a more remarkable fortification than that which extends from the Soura in a weſtern direction. This line is ſtill in a tolerable ſtate of repair, though all the fortified places connected with it have almoſt uniformly loſt their wooden barriers, and become open towns and villages." Vol. i. p. 82.

Trade and manufactures progreſſively increaſe, and begin to flouriſh at Penſa. The Ruſſian ſhopkeepers and mechanics have become more numerous, enterprizing, and wealthy, ſince the nobility have made this town their reſidence. Beſides the travelling dealers, there have alſo ſettled here ſeveral foreign merchants, who plentifully ſupply the town with every article of convenience and luxury. Moſt of the different ſpecies of refinement, together with public amuſements, have already made their way hither. The reſident noble families, and perſons of rank who viſit this town, have not only enlivened it, but even rendered its inhabitants ſociable and polite. Among the noble viſitors I ſhall mention principally his Highneſs Prince ALEXANDER BORISSOVITCH KURAKIN, who poſſeſſes conſiderable eſtates in this government, and now enjoys a philoſophic retirement, at a period of life much too early for the ſecluſion of his talents. This aſſemblage of perſons of rank has induced them to inſtitute a private club, conſiſting of one hundred members, who meet every Saturday at a ball, in an elegant and ſpacious building erected on the principal place of the town. The diſproportionately greater number of ladies who

who viſit this ball, is ſtill more remarkable than at Moſco; becauſe many noblemen are abſent from their families, and employed in civil and military poſts. Perhaps the cruelties exerciſed in theſe countries during the rebellion of Pugatſhef, have alſo contributed to diminiſh the number of male nobility.

The governments of Penſa, Niſhnè-Novgorod, Simbirſk, and Saratof, are the true granaries of the Imperial capitals. It is only to be regretted that the greateſt part of the inhabitants, and particularly the vaſſals of the nobility, conſiſt of vagrants who came hither from all parts, and may be fairly claſſed with the moſt indolent and depraved peaſantry of the empire. Nor have any effectual ſteps been taken to facilitate the exportation of grain, by the inland navigation of the Soura and Mokſha, which might be eaſily improved, and likewiſe rendered ſubſervient to the conveyance of timber for ſhip-building. A conſiderable proportion of the people who inhabit this government conſiſts of Mordvines of the Mokſhanic tribe, who chiefly live in the woody countries along the banks of the Mokſha, and in the mountainous regions between the Soura and Volga. Indeed, if we may judge from the names of the rivers and brooks, which are moſtly of Mordvinic derivation, the government of Penſa muſt have formerly been the principal ſettlement of that people.

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"On the ſandy banks of the Soura, the *Braſſica oleracea*, or common white cabbage, grows in abundance. After paſſing this river, we entered the foreſt of the ſame name. Six verſts from the Soura we croſſed the Sourka, and about twelve verſts farther the brook called Inara. Night overtook us in the

Mokſhanic village Selikſa. The Mordvines who inhabit this country are ſucceſsful in the management of bees, which are kept ſimply in the hollow trunks of trees, inſtead of hives, with only a ſlight covering during winter. They alſo rear a great number of cattle; but their ſheep are of ſo inferior a kind that the wool ſeems to be mixed with goat's hair. Several real hermaphrodites * may be ſeen among them, both of ewes and rams. Many peaſants employ themſelves in making tar, as the country produces reſinous trees in great abundance.

" Beyond Seliſka we paſſed through ſwampy ground over the rivulet Otvel: eight verſts farther we croſſed the Traſimovka; and near Mikhaïlovka the rivulet Iſchim, all of which empty themſelves into the Soura. Here the country is more open and hilly; and a road leads hence to Simbirſk, partly over heaths; and as it extends conſiderably towards the South, I was induced to take a ſhorter, though in autumn, a more difficult way. On the other ſide of the rivulet Tomaleika, which joins the Iſhim, we travelled through a hilly and marſhy country overgrown with wood. At the cloſe of day we arrived at a market-town ſituated on the rivulet Youlok. The heights of this country conſiſt of a grey-coloured argillaceous ſtone, which, when heated, breaks into ſmall pieces. It ſplits in the form of cubes and parallelograms. The town of Youlok-Gorodiſhtſhé derives its name from an ancient Tartarian fortreſs in its vicinity called *Gorodok*. This village is chiefly built on the left bank of the brook. On the oppoſite ſide, bordering on a ſwampy ſoil

* The author is rather obſcure in this paſſage; and the German expreſſion is *Zwitter*; but he probably alludes to mongrels.—*Tranſl.*

covered

covered with old trunks of trees, there is a ſteep elevation which extends into a plain. Here a ſtrong fortification, with a foſſe, had been erected in the form of an irregular and angular ſemicircle. On the Eaſtern ſide it was cloſed and defended by an almoſt perpendicular precipice; the circumference of of the whole being about three hundred and fifty fathoms. Several gateways leading to the fields ſtill remain; but there is no trace of dwellings in the inner parts of the fortreſs. About the centre I obſerved a circular excavation, which probably has been uſed for watering cattle.

" On the 22d of September we arrived at *Simbirſk*. The roads were ſo bad that it was impoſſible to travel by night; nor was it without difficulty that we could proceed in the day-time, though we had a double relay. We paſſed through ſmall villages inhabited chiefly by Mokſhanians, on both banks of the Soura. The proſpect is terminated by hillocks which riſe in the environs of that river, and the country abounds with wood. The heights almoſt generally extend in long ridges which, towards the Weſt, preſent a pretty ſteep acclivity; while towards the Eaſt they form gradual ſlopes. They are uniformly compoſed of a grey-coloured argillaceous earth, or flint, in horizontal ſtrata. The ſoil generally conſiſts of loam or potter's clay: it is black in low ſituations, but frequently ſandy on the eminences. The woods on the hills are interſperſed with pine-trees; while thoſe in the valleys and plains conſiſt either entirely of oak, or of ſeveral umbrageous trees, of which the hard and ſoft linden-tree are the moſt common. The latter ſpecies is peculiarly favourable to the culture of bees in that

that country. Beſides, the linden-tree is of moſt general uſe in the rural economy of Ruſſia, both on account of its wood, of which all ſorts of furniture and domeſtic utenſils are made, and its valuable inner rind of which cords and mats are manufactured. In thoſe parts where numerous flocks of ſheep are reared, the peaſants dry a large quantity of linden ſprigs with their foliage, which is an agreeable fodder for lambs in winter. Among theſe woods ſeveral plots have induſtriouſly been converted into meadows, though many acid herbs and the noxious hellebore grow there abundantly. The land near the villages is generally uſed for tillage. We found much hemp and grain, both ſtanding and cut down, but buried under the ſnow and rotting there, between the 16th and 22d of September, excepting what had been collected in fine weather. The fields ſown with winter-grain preſented a proſpect equally melancholy, as the riſing blades had been devoured by a ſpecies of caterpillar, *Phalæna frumentalis*, which has within theſe few years become an almoſt general plague in the government of Kaſan. The devaſtation was ſo conſiderable that the greater part of the ſpringing corn was eaten to the root. The fields which were firſt ſown had ſuffered moſt ſeverely; but the lateſt ſown, though interſperſed among fields totally deſtroyed by the vermin, were uninjured, and in the moſt promiſing ſtate of vegetation. The intervening damp and cold weather killed a great number of theſe pernicious inſects, which uſually conceal themſelves beneath the ſoil during the day. The beſt preſervative againſt theſe caterpillars would be, to overſpread the fields plentifully with aſhes, as ſoon as the corn begins to appear, eſpecially

eſpecially during moiſt weather. The aſhes of wheat, buck-wheat, or pea-ſtraw, which are burnt as uſeleſs, would be excellent for this purpoſe.

" The valleys which divide theſe heights are watered by rivulets that fall either ſeparately or in conjunction with others into the Soura. Numerous villages are built along the banks of the following brooks: The firſt is the Youlok; then follow the Treleika, the Sirklei, and farther the ſmall brooks Katmiſs, Tſhevarleika, Sadovka, Oſerka, and Inſa; then the Papouſa, a very conſiderable brook, the Bielaretſhka, the Imbelovka, the Tſhulim, the Touvarma, the little river Bariſh, and the brook Maïna. The Bariſh, after uniting with ſeveral of the before-mentioned rivulets, empties itſelf into the Soura. Here commences the chain of hillocks which accompany the Volga. The country is more open, and the woods around conſiſt of birch-trees. The heights preſent, at different interſtices, white ſlips entirely barren, formed of a cretaceous marl ſimilar to that which is found in almoſt all the hillocks from Simbirſk along the Volga to the Ouſa, and in the deſert plain of this country. At a certain depth below the black mould there is a bed of argillaceous earth. This marl is by the natives called *Opoka*. They uſe it for whitening their ſtoves; and it would be excellent, if moderately employed, for ameliorating impoveriſhed lands. In ſome places it is more clayey and of a greeniſh colour; in others generally more cretaceous or calcareous, and it is frequently compoſed of pure chalk, or teſtaceous lime, intermingled with calcined ſhells or belemnites. There are alſo ſometimes diſcovered here, thin layers of white feld-ſpath.

On

" On approaching the Sviaga and Simbirſk, the only objects which preſent themſelves are open, high ſteppes *, with obtuſe hillocks. Among the plants which grow in the deſerts near the banks of the Volga, the *Amygdalus nana*, or the dwarf almond-tree, is the moſt plentiful. This is one of the moſt pernicious ſhrubs to lands newly cleared, on account of the great difficulty attending its extirpation. Its fruit is called *Babovnick*, or walnuts of the Kalmuks, becauſe it is ſmall and rough. Some landed proprietors collect this fruit, and extract from it an oil which, though bitter, is very agreeable in ſalads. Theſe almonds have the taſte of peach kernels, and a ſpirituous liquor is alſo diſtilled from them." Vol. i. pp. 78—82.

The whole population of the government of Penſa amounted, in February 1793, to 136,282 immediate ſubjects of the crown, including 3794 Tartars; and 183,607 boors, or vaſſals of the nobility. In the diſtrict of Penſa alone, are 18,727 boors of the latter deſcription, and only 1063 immediate vaſſals of the crown: in that of Inſara are computed to be 20,264 of the former, and only 7209 of the latter claſs: nay, the diſtrict of Mokſha contains but 478 vaſſals of the crown, while thoſe of

* This term does not properly denote low and watery places, or moraſſes, but dry, elevated, extenſive, and for the moſt part uninhabited plains. Some of them being deſtitute of wood and water, are therefore uninhabitable; others have ſhrubs growing on them, and are watered by ſtreams, at leaſt have ſprings or wells, though they are void of inhabitants; yet in theſe nomadic people wander about with their herds and flocks, and thus make them, if not their conſtant, yet their ſummer reſidence. In many of them are ſeen villages.—See Mr. Tooke's "*View of the Ruſſian Empire.*" 1799. Vol. i. p. 81.

the

the nobility amount to 22,393. According to an accurate ſurvey, the whole ſurface of this province is 3,289,231 deſættines, each of which contains 2400 ſquare roods: conſequently, there are for every male head upwards of ten deſættines, or 24,000 ſquare roods of land. In ſo thin a ſtate of population, the farmer can conveniently divide his ground into fallows; whence he obtains, without manure, good crops from a ſoil which uniformly conſiſts of a rich black loam, ſo that the produce even of ordinary crops is from five to ſeven-fold. The peaſants of the nobility pay them an annual tribute of twenty rubles, a ſum not eaſily raiſed. On account of this high impoſt, the boors, in a ſtate of vaſſalage, are ſold at the price of two hundred rubles each, together with the lands belonging to a village.

There is not the leaſt doubt that the aforementioned black vegetable ſtratum of ſoil, which is upwards of two feet thick, originated from the foreſts that formerly covered theſe regions. This black earth is likewiſe found on all the hillocks and open fields, eſpecially thoſe with gentle elevations, which run in a northern direction. The traces of former oak-foreſts are obvious, partly from the bruſhwood growing out of the parent roots, and partly from the numerous ſmall hillocks covered with green turf. Nevertheleſs, there would be no reaſon to apprehend a ſcarcity of this or any other ſpecies of wood, if the indolent proprietors and their vaſſals could be induced to beſtow ſome attention on the increaſe and preſervation of that uſeful article, in the rural and domeſtic economy of man. This object might in ſome degree be attained, if a proper foreſt-police, as the allotment into annual falls, and the conſequent re-planting and

ſowing could be introduced, at leaſt on the domains belonging to the crown: a regulation which would be the more deſirable, as the oak growing on the heights near the Soura is far preferable to that of Kaſan, eſpecially for ſhip-building, both on account of its ſolidity and durability.

But the unſettled laws of the government, with reſpect to the numerous diſtilleries of corn-ſpirits; the manufactories of pot-aſh, glaſs, and iron; nay, even the claims of ſome pariſhes to the privilege of felling wood, have fruſtrated every attempt towards eſtabliſhing better regulations. The Commiſſioners of the Admiralty, who ſelect the timber for ſupplying the Imperial navy, and ſeveral thouſand Tartars who are employed by them, and ſcattered through this government, particularly in the diſtrict of Saranſk, are not in the leaſt anxious to prevent the waſte, or to cultivate new plantations. The Mordvines, however, are more ſolicitous to preſerve the foreſts in the countries they inhabit; becauſe their veneration for old and beautiful oak-trees has continued, ſince the days of paganiſm. We were informed that in the foreſt of Mokſha, which extends towards Muron, a conſiderable number of large oak-trees are to be met with, many of which are from two to three fathoms in circumference. It is to be regretted that the moiſt ſoil is not favourable to the production of valuable wood, inſomuch that no timber which grows there is fit for ſhip-building. — I learnt from an eye-witneſs, that in the diſtrict of Naroftſhat, near the Mordvinic village *Alkina*, among other oak-trees of a gigantic ſize, there is one of a moſt venerable appearance, whoſe hollow and broken trunk is ſeveral fathoms high, and thirty feet in circumference, but conſiderably larger near the ground; while its principal

principal roots are of an extraordinary bulk, lying almoſt a yard thick, above the ſoil.

The timber felled for the Admiralty near the Soura is, during winter, tranſported to Penſa; ſeven verſts below the town, at what is called the Kokuſhkinſkaya-Priſtan, it is put into barges, and thence at high water conveyed down the river Volga. But beſides this, a number of ſtraight, young oaks are waſtefully cut down for implements of agriculture, domeſtic utenſils, and fire-wood. Many promiſing trees are thus deſtroyed, or ſawn into two planks, with an incredible loſs of wood. I have frequently obſerved in the markets, ſome of theſe enormous planks, from four to five fathoms long, and from twelve to eighteen inches * in diameter, ſold at the low price of half a ruble a-piece.

Next to the majeſtic oak, may be ranked the linden-tree, which in ſome parts of the province is very large. The abundant and excellent honey produced here, owes its ſuperior quality to the bloſſoms of that uſeful tree. The *lipez*, or genuine linden-honey, is of a greeniſh colour, and of the moſt delicious flavour: it is taken from the hive immediately after the linden-tree has been in bloſſom.

There is likewiſe no ſcarcity of birch-trees. The oil obtained from their *degot*, or white rind, is not only uſed in tanning the well-known Ruſſia leather, but is alſo beneficially employed as a vermifuge balſam in the cure of wounds. It is frequently brought to market at Penſa, whence it is ſent to more diſtant places.

* The author ſays, from two to three ſpans in diameter.

The other ſpecies of wood growing in theſe regions, conſiſt chiefly of umbrageous or broad-leaved trees, which are common in the northern parts of Ruſſia. Needle-timber, that is, reſinous-trees, or ſuch as have acuminated leaves, are to be met with chiefly, and almoſt excluſively, in the ſandy regions of this government, which lie at ſome diſtance from the Soura.

Wild fruit-trees are not indigenous here. The *Ceraſus pumila*, or cherry-ſhrub of the Viſtula, grows only on the ſouthern deſerts, on the borders of the government of Saratof, and in the diſtrict of Kerenſk: hence the eſcutcheon peculiar to the latter is a couple of ſprigs bearing cherries, in a ſilver field.

Of wild berries, the following kinds are to be found here: bramble-berries, raſp berries, black currants, cranberries, bilberries, wortle-berries, and three ſpecies of ſtrawberries; the large white ſtrawberry of the wood, which is very common in the mountains of Ural; and two ſpecies of field-ſtrawberries, one of which ripens earlier in the ſeaſon, while the other delights in a ſoil ſheltered by old trunks of trees. — Very few rare plants are found in this government. The moſt remarkable, perhaps, are, the *Betulanana*, or dwarf-birch; the *Daphne mezereum*, or ſpurge-olive; and the miſletoe which grows on linden-trees, and is well known in the northern parts of Ruſſia.

Fruit-trees, in general, do not thrive here in the open air, except the apple and black-cherry-tree: the pear, plum, and ſweet-cherry-trees, muſt be carefully covered, as in Moſco, to preſerve them from the rigour of winter.

The

The river Soura ariſes in the mountainous regions, in the government of Saratof, at a ſhort diſtance from the Volga, and in the vicinity of the village Sourka. It takes its courſe directly oppoſite to that of the Volga, flows two hundred and thirty-nine verſts northward, through the middle of that government, and falls into the laſt-mentioned river, near the ſmall town of Vaſil-Surſk. From Penſa, and even above that city, the Soura becomes a large navigable river, with a rapid current, and when at the higheſt water-mark, it inundates the country to a conſiderable extent. This inundation generally takes place about the middle of April, and uſually continues three or four days. It often carries away its banks, and changes its courſe, which, together with the abrupt windings it frequently makes, and the trunks and branches of fallen trees, renders the navigation difficult and dangerous at low water. From Kerenſkoi-Priſtan, however, or about one hundred verſts below Penſa, the paſſage on this river is more regular. But from Kokuſhkinſkoi-Priſtan, eſtabliſhed ſeven verſts below Penſa, and ſtill more ſo from Surſkoi-Priſtan, where barges are built, and which is contiguous to the city, the navigation is attended with danger, owing to the obſtructions aforementioned, which might be removed at a ſmall expence.

Notwithſtanding theſe difficulties, there is a large quantity of grain, the abundant produce of the corn-diſtilleries, and timber for ſhip-building, annually conveyed down the Soura. Perhaps the ſalt obtained from the lakes of the Volga could be more advantageouſly carried down the Soura, than againſt the ſtream of the Volga to Niſhnè-Novgorod, even with the addi-

tional

tional expences of land-carriage from Saratof to the banks of the Soura. This mode of tranſporting the productions of the country was formerly attempted, by order of Count Shuvalof, in the reign of the Empreſs Elizabeth, when the ſalt-lakes were farmed out to individuals; but it has been relinquiſhed in conſequence of its having been miſrepreſented as unprofitable. The Soura is not navigable when the water is at the higheſt mark; becauſe the true channel, and the iſlands and banks of that river, cannot then be diſtinguiſhed; hence the conveyance of goods commences only when the water riſes from five to ſix arſhines * above its loweſt current. The breadth of the river muſt be computed from its regular banks, or from the mouth of the rivulet Teſhnär, whence empty barges are floated down to Penſa: here it is from ten to thirty fathoms broad, and from three to twenty-four fathoms deep.

Beſides the Soura there are two other rivers, the Mokſha and Vorona, which facilitate the carriage of commodities from this fertile province. The Mokſha takes its riſe in the diſtrict of Penſa, from a lake near the village Netſhoëvka, where it is from two to ten arſhines deep, and is interſected near its ſource with many dams erected for the ſupply of mills. It becomes navigable from the mouth of the Iſſa to the Okka, into which it flows, and where it is from ten to fifteen arſhines deep, and from thirty to ſixty fathoms broad. This river ſerves for the tranſportation of corn, ſpirits, pot-aſh, the rind of the linden-tree, or *Lubya*, and mats, which are by this conveyance ſent as far as Moſco and St. Peterſburg.

* An arſhine, or Ruſſian yard, is twenty-eight inches long.

The

The Vorona likewiſe originates in this government, in the diſtrict of Verchney-Lomof, near the village Vedenäpina. It becomes navigable for ſmall veſſels, called *Budari*, near the extenſive village Poima, belonging to Count Sheremetof. The inhabitants of this village are remarkable for their exemplary induſtry. Thence all the native ſpecies of grain are tranſported on the rivers Khoper and Don, to Tſherkaſk, the capital of the Kozaks, who inhabit the banks of the river Don; and again as far as Fort Roſtov. If, at ſome future period, a free port were to be eſtabliſhed in the ſtraits of the Boſphorus, and thus a commercial intercourſe opened between the ſea of Azof and the Mediterranean, there is no doubt that the flax and hemp, ſo abundant in this part of Ruſſia, could be exported at a reaſonable price through this new channel.

All the ſmaller rivers above-mentioned, as well as the Volga, have their higher bank uniformly on the right ſide of their ſtreams, while the left bank is flat, and preſents an extenſive low country, though the rivers run in the moſt irregular and oppoſite directions.

This facility of communication by water, the low price of the ſuperabundant grain, and the ſtock of wood ſtill preſerved in ſome diſtricts, have induced private individuals, as well as the Crown, to eſtabliſh many important diſtilleries of corn-ſpirits, ſeveral glaſs-houſes, and iron-founderies; and alſo manufactories of ſoap, pot-aſh, and leather.

The principal of theſe diſtilleries are as follow:

In the diſtrict of *Kraſnoſlobodſk*:

1. The diſtillery belonging to the crown-domain Dvorzovye, called Troitzkoi-oſtroſhkoi, where, ſince the year 1767, one hundred

hundred and fifty labourers have been employed, who diſtil annually, in eighty ſtills, one hundred thouſand barrels, or eimers *, of corn-ſpirits.

2. In the Brilovſkoi, which belongs to the Imperial College of Finances, from ninety ſtills, worked by one hundred and ſixty men, are yearly diſtilled one hundred and ten thouſand barrels.

3. A private diſtillery, conſiſting of twenty ſtills, which produces thirty thouſand barrels.

In the diſtrict of *Inſara.*

4. A diſtillery belonging to the family of Soltikof, and conſiſting of twenty-four ſtills worked by fifty-five men, yields ſeven thouſand barrels of ſpirits.

In the diſtrict of *Mokſha.*

5. A diſtillery in the village of Alexeëvka, the property of the Annikof family. Here the foreign conſtruction of ſtills is adopted; ſo that ſix thouſand Tſhetverts † of corn, in fifteen ſuch ſtills, managed by forty men, produce annually thirty-three thouſand barrels of ſpirits, and conſume three thouſand fathoms of wood.

6. A diſtillery belonging to the Iſmailof-family, at *Kutlinſkaya Sloboda*, where five ſtills and thirty workmen, from one thouſand ſeven hundred tſhetverts of corn, diſtil ſeven thouſand ſix hundred and fifty barrels of ſpirits, and require one thouſand five hundred and thirty fathoms of wood.

* The Ruſſian *Eimer* contains ſix hundred and twenty-one French cubic inches; the Engliſh gallon wine-meaſure, one hundred and ninety-one French cubic inches: conſequently, the Ruſſian Eimer is equal to *three gallons* and *one quart* of Engliſh wine-meaſure, and a fraction of three-fourths of a French cubic inch.—*Tranſl.*

† The Tſhetvert, or quarter, contains two granitzas of eight inches ſix lines in diameter, and three inches four lines in depth.

7. A

7. A diſtillery in the village Snamenſkoi belonging to Prince Dolgorukof, where two ſtills worked by twenty men, from four hundred tſhetverts of corn, and five hundred and fifty fathoms of wood, produce one thouſand ſix hundred eimers of ſpirits.

In the diſtrict of *Gorodiſhtſhé*:

8 and 9. Two diſtilleries in the village Niſhnaya-Shkaffta, the property of Count Shuvalof; one of twelve, the other of thirteen ſtills, which, being managed by fifty workmen, yield together fifty thouſand eimers of ſpirits annually.

10 and 11. Two diſtilleries in the village Siromäs, belonging to the Kolokolzof-family, one of which is carried on in twelve ſtills, by fifty workmen, and produces eleven thouſand barrels of corn-ſpirits; the other of five ſtills, is farmed out and worked by ten men, who diſtil upwards of four thouſand eimers a-year.

12. A diſtillery near the village Petrovka, poſſeſſed by the family of Bachmetief; it conſiſts of thirteen ſtills, and is worked by ſeventy men, who in ſome years diſtil above ſeven thouſand eimers of ſpirits.

13 and 14. Two diſtilleries, formerly belonging to the family of Count Orlof; one in the village of Stolipina, the other in the neighbourhood of the village of Mamſa; they conſiſt of thirty-five ſtills each, are worked by ninety men, and produce each upwards of ninety thouſand eimers annually.

In the diſtrict of *Kerenſk*:

15. A diſtillery in the village of Nikolſkoi, or Kitta, on the eſtate of Count Tcherniſhef, contains thirty ſtills, by which

ſeventy-two workmen diſtil about five thouſand eimers of ſpirits from two thouſand one hundred and thirty-five tchetverts of corn, and the fires employed in the diſtillation conſume upwards of two thouſand fathoms of wood.

16. A diſtillery near the village Polivanova, the property of the family of Vſevolodſki, conſiſting of ſixteen ſtills, which are worked by forty-five men, and produce yearly eight thouſand one hundred and fifty-one eimers of ſpirits, at the expence of two thouſand three hundred and ſeventy tchetverts of corn, and ſeven thouſand fathoms of wood *.

On

* Although the author does not mention the particular kind of grain uſed in theſe diſtilleries, yet it is well known that rye is principally employed for that baneful purpoſe: nor does he deſcribe the dimenſions of the ſtills, nor the method adopted (No. 5.) from foreign diſtilleries.—To give the reader ſome idea of the extent of theſe diſtillations, and their pernicious effects, namely, the moral and phyſical depravation of the human character in Ruſſia, I have been at ſome pains to make the following comparative ſtatement.

The government of Penſa, according to our author, contains 323,683 males, and conſequently, computing the female ſex at an equal number, the population will amount to 647,366 perſons. This calculation nearly agrees with that given by Captain Pleſcheëf, whoſe "Survey of the Ruſſian Empire" has been tranſlated into Engliſh in 1792, and, according to whom, the population of the government of Penſa then conſiſted of 640,700 individuals.—Mr. Tooke, the ingenious author of the work already quoted on ſeveral occaſions, ſtates the whole population of Ruſſia at preſent to amount to 36,000,000; ſo that the government of Penſa contains about the fifty-fifth part of the inhabitants of that empire. This being one of its moſt fertile provinces, it cannot be admitted as a juſt concluſion, that all the other governments diſtil an equal quantity of corn-ſpirits: for, in Penſa alone, the number of ſtills is three hundred and ninety-ſeven; they employ nine hundred and eighty-two workmen, conſume eighty-ſix thouſand two hundred and ſeventy-nine tchetverts of corn, and ninety-ſix thouſand three hundred and ſeventy-five fathoms of wood. The produce of the whole is five hundred and fifty-four thouſand four hundred and one eimers of corn-ſpirits;

and

On this occaſion, I cannot avoid mentioning an intereſting treatiſe, publiſhed in 1792 at Moſco, in the Ruſſian language, by Mr. Vaſſili Nicolævitch Subof, the preſent director of economical affairs in the government of Penſa. This gentleman, who poſſeſſes large diſtilleries in the diſtrict of Saratof, and has paid much attention to the ſubject, deſcribes the means of increaſing the quantity of ſpirits in diſtillation. He not only offers, as he had previouſly done in the newſpapers, to admit pupils into his ſchool for improving the art of diſtilling, but he likewiſe informs the public of the principles on which theſe improvements eſſentially depend. Thus he has, with the common apparatus, from a tchetvert of corn weighing nine pood, or three hundred and ſixty Ruſſian pounds, produced ſix eimers and a quarter of ſpirits; while others, from the ſame quantity of grain, could obtain only five eimers. This remarkable increaſe of the ſpirituous produce, the author principally attributes to the following circumſtance: In order to reduce the temperature of the hot water uſed in the maſh, he cauſed cold water and ice to be added, by which the evaporation of ſpirituous parts during fermentation was prevented. By this and ſome other practical advantages, which he promiſes to communicate without reſerve to his pupils, he has brought this art to ſuch perfection, that from ten pood, or four hundred Ruſſian pounds, he uniformly obtains ſeven eimers and four-fifths of common proof ſpirits.

and calculating each eimer at thirteen quarts Engliſh wine-meaſure, it appears that Penſa alone diſtils annually, from wholeſome grain, about two millions of gallons of LIQUID POISON.—*Tranſlator.*

In the diſtrict of *Inſara*, the following glaſs-houſes are eſtabliſhed.

1. On the rivulet Patiſha, where common green glaſs veſſels are manufactured, and for which two thouſand pood of pot-aſh are annually uſed.

2. A large glaſs-houſe, to which is attached a ſmaller one, ſituated near the village of Petrovka, belonging to the family of Bachmetief. Here white flint-glaſs is made in ſome perfection.

Beſides the iron-works which are eſtabliſhed in the ſmall town of Inſara, deſcribed in the firſt volume of my former Travels, I have met with three other forges, or ſmelting-works, in the diſtrict of Kraſnoſlobodſk, of which I then had no knowledge, though they had been erected many years. The firſt is called Rapkinſkoi, and was erected in 1722, by Taras Vaſſielevich Melakof, an inhabitant of the village Dedelova. He alſo, in 1726, built the ſecond, called Siviſkoi-Savod. The third was built by his ſon, Andrew Melakof, in 1754, and is called Avgorſkoi-Savod. Rapkinſkoi now belongs to Mr. Shopkin, a merchant of Vologda; but the two laſt are the property of M. Tſhekantſhikof, a merchant of Moſco. The proprietors of theſe three iron-manufactories purchaſe the iron ore, and the coal uſed in ſmelting, from the inhabitants of the neighbouring villages. The firſt is ſaid to produce twenty-five thouſand pood of pig-iron; the ſecond ten thouſand pood of indifferent bar-iron; and the third eighteen thouſand pood of pig-iron.

After the government had relinquiſhed the pot-aſh manufactories, ſeveral private individuals eſtabliſhed others on a ſmaller ſcale,

ſcale, of which I found four in the diſtrict of Inſara. The firſt of theſe manufactories belongs to Counſellor Shedrinſkoi who commenced it in 1780, in the village of Treſvatſkoi, where ſix workmen employ ſeven hundred tchetverts of wood-aſhes, from which they annually produce ſeven hundred pood of pot-aſhes. The ſecond, which is the property of Captain Nikonof, was eſtabliſhed in 1783, in the village of Golovintchina, and yields the ſame quantity of pot-aſh. The third was begun in 1778, near the rivulet Patiſha, by a Lieutenant Koſhin, and yields five hundred pood of pot-aſh, from ſix hundred tchetverts of wood-aſhes: here they employ ſix workmen, and make uſe of ſix kettles. In the fourth, which belongs to Aſſeſſor Yumatof, and was commenced in 1783, near the village Iſſinſkyé Malyé Polani, the ſame number of men and materials are employed, which afford a ſimilar quantity of this uſeful manufacture.

There are likewiſe ſeveral cloth-manufactories lately eſtabliſhed in the diſtrict of Inſara; and I ſhall particularly mention ſix for making ſail-cloth, which employ nearly three hundred workmen, and produce annually, upon one hundred and ſixty-four looms, about two thousand pieces of cloth; the greateſt part of which is ſent to St. Peterſburg, and thence exported. If the commercial intercourſe by the Black Sea ſhould become more extenſive, there is little doubt but theſe manufactories will increaſe, as it would be more convenient and profitable to export their goods through the more contiguous channel of the Boſphorus. The manufactures of Ruſſian leather, *Youghten*, and the ſoap manufactories of this government, are principally carried on in the town of Penſa, and in the diſtrict of Saranſk. In the former place, five boilers annually produce upwards of twelve

twelve thouſand pood of ſoap; and in five leather manufactories nearly eight thouſand hides are prepared. I dwell with complacency on theſe ſubjects, becauſe I feel inexpreſſible pleaſure in obſerving that, ſince my former travels, in the year 1768, the induſtrious diſpoſition of the inhabitants of this country has in a remarkable degree increaſed.

The phyſical travels of the academicians, from the year 1768 to 1773, have very much contributed to diſſeminate philoſophical knowledge, and to excite a ſpirit of inquiry into the Natural Hiſtory of the Ruſſian Empire. I was very much delighted to find ſeveral ingenious naturaliſts in Penſa, particularly the College-Counſellor Fedor Michailovitch Martynof, and Mr. Peterſon the apothecary, who had collected a variety of the curious natural productions of this country. The moſt remarkable of theſe I ſhall attempt to deſcribe, and ſubjoin ſome obſervations of my own.

Iron-ores, both of the ochre and laminated kind, are not only found near the iron-works before enumerated, but likewiſe on the eſtate of Kolokolzof near Pen[illegible], and beyond the Soura, about twenty-five verſts above K[illegible]a, near the village Lapukhovka. Thoſe of the latter place have been deemed worthy of being ſmelted, and the mineralogical college had granted permiſſion to eſtabliſh a ſmelting-work, which however has not been carried into effect.

A loamy ſand-ſtone has been found on the banks of the rivulet Aiva, beyond the Soura. This quarry is near the village Kaſarka, ſeven verſts from Shkaffta, a diſtillery belonging to Count Shuvalof.

Petrified

Petrified wood, of a ſilicious and ſandy nature, with a beautifully variegated grey and whitiſh texture, but ſeldom ſo hard and white as that of Syzrane, is found here in horizontal ſtrata, nay what is extraordinary, in ſeveral places almoſt on the ſurface of the ſoil, particularly at Beſſonovka, a beautiful eſtate ſituated below Penſa, and belonging to the Soltikof-family;—farther, in the vicinity of the village Vedenſkoë, where it reſembles the wood of the elm in texture, and is uſed for hones; and beyond the Soura, near the village Kaſarka, in the diſtrict of Gorodiſhtſhé.

The College-Counſellor Martynof has in his cabinet a jaw-bone, ſeveral grinders, a calcined ivory tooth, and a rib of an elephant, found under the ſurface of the ſoil, near the village Levino, fifty verſts from Penſa, and about five verſts to the weſt of the great road. He alſo ſhewed me a piece of an elephant's tooth, which had been found in the brook Shukſha, that empties itſelf into the Soura, near the village Shakhmametova. This fragment appears to be part of a perfectly ſound tooth; it is very crooked, and much furrowed on the outſide.

Theſe veſtiges of a former deluge are diſcoverable in the uppermoſt ſandy and loamy ſtrata, which are frequently intermingled with cylindrical ſtones; and, in the deeper clayey layers, there are likewiſe found the remains of marine productions: even on the heights of Penſa, in ſinking a well at a conſiderable depth, inſtead of finding water, large quantities of oyſters were diſcovered in a bed of clay. Muſcles have been found in a complete ſtate of preſervation, in the banks of a ſmall lake, near the village Traſimoftſhino, in the diſtrict of Gorodiſhtſhé.

There

There are but few remarkable quadrupeds in the government of Penſa, which, on account of its ſuperior cultivation, has ſcarcely any wild animals excepting thoſe of the foreſt. The large otter, and the *Lutreola*, or ſmall otter, which lives upon lobſters, are ſaid to be very common in the Mokſha and Soura. The latter, when caught alive, cannot be domeſticated, and ſoon dies. The *Sorex moſchatus*, or muſk-rat, is found in the Soura, and in the brooks which fall into the Khoper. The large grey houſe-rat has not yet made its appearance in theſe regions.

A particular ſpecies, or mongrel variety, of the domeſtic cat, engaged a conſiderable ſhare of my attention. It was the offſpring of a black cat which belonged to Yegor Michailovitch Shedrinſkoi, Counſellor of State, and had kittened three young ones that exactly reſembled each other. Their mother lived alone in the village of Nikolſkoi in the diſtrict of Inſara, on this nobleman's eſtate, and often retired to a young foreſt, behind a garden which is laid out in the Engliſh ſtyle. The domeſtics had remarked that this cat was abſent during the rutting ſeaſon; and it was alſo reported that ſhe formerly had kittens of the common kind, which ſhe devoured a few days after their birth. I ſaw two of her brood in the houſe of Counſellor Martynof, and one in that of the Lord-lieutenant. The form of this cat, and particularly the nature and colour of the hair, exhibited ſo extraordinary an appearance, that I was induced to give a repreſentation of it in the firſt plate. It is of a middle ſize, has ſomewhat ſmaller legs than the common cat, and the head is longer towards the noſe. The tail is thrice the length of the head. The colour of

of the body is a light chefnut brown like that of the pole-cat, but blacker on the back, efpecially towards the tail, and paler along the fides and belly. The throat is whiter, and the female has a white fpot on the lower part of the neck. A black ftreak runs along the nofe, furrounds the eyes, and ends in a point on the forehead. The ears, paws, and tail are quite black. The hair, like that of the pole-cat, is fofter than of the common cat, and the lower or furry part is of a whitifh grey. The hair of the tail is fomewhat elaftic, and lies flat in divifions. The exquifite olfactory fenfe, agility, and other characteriftics of thefe three animals, are fimilar to thofe of the common cat. But they had been extremely wild at firft, hid themfelves in cellars, and holes, nay even burrowed under ground, and had not yet acquired the fociable qualities of our domefticated cats. I fhall not attempt to determine whether they may be confidered as a mongrel breed.

Of the winged tribe, there are in the government of Penfa many wood and heath cocks, a great number of tame and wild ducks, and, in winter, innumerable flocks of fmall birds, which feed on feeds, particularly fifkins and greenfinches, that fwarm about the ftacks and threfhing-floors of villages. This multitude of birds is a ftrong inducement to bird-catchers to come hither even from Mofco: they catch many thoufands of greenfinches, which are carried for fale to that city. Thefe birds particularly abound in the village of Kurilovka, which belongs to the family of Manfurof. It is fituated beyond the Soura, at the diftance of nine verfts from Penfa, immediately behind the village Ternovka, which may be feen from that city.

the roads, and are pointed out by marks of bruſh-wood, or young trees. Thus the forcſts are unneceſſarily waſted, inſtead of which ſuch young trees might be planted along the road, and rendered ſubſervient to another uſeful purpoſe. Beſides, the ſcarcity of wood is more felt as we advance towards the South. inſomuch that the peaſants are obliged to live in the moſt wretched cabins, and as they pay very high taxes to their landlords, the major part of whom are noblemen, their poverty is inconceivable. Nevertheleſs, the boors throughout theſe countries keep a greater number of good horſes and cattle, than thoſe in other parts of Ruſſia; becauſe the extenſive ſteppes afford good paſturage. They have likewiſe here a larger breed of geeſe, turkeys, and other kinds of poultry.

On the 10th, early in the morning, we proceeded fourteen verſts on our journey to the village Tſhunakino, built near a ſmall brook joining the Tſhardym, which empties itſelf into the Ouſa. Here we found numbers of birch-trees, intermixed with oaks of an inferior growth, and various kinds of bruſh-wood. Although the Soura is ſeventy verſts from this place, the boors are in general obliged to fetch their timber from the banks of that river.

During the whole of our journey through the fertile government of Penſa, and as far as Saratof, we were accompanied by ſmall flights of ſnow-hammers, which uſually flew before the horſes, boldly alighted on the road, and were particularly numerous about the corn-ſtacks. They probably remain in theſe regions during the whole winter. Our road now extended over elevated plains which were covered with birch, and ſeparated the brooks that flow into the Soura from the Medveditza.

veditza. On deſcending from theſe elevations we arrived at the brook Krutetz, being the firſt that falls into the Medveditza. After we croſſed the brook and travelled twenty-one verſts, we entered the ſmall diſtrict town of Petrofsk, built by Peter the Great during the Perſian war. The river Medveditza runs through the middle of this town, which has nothing to boaſt of but the regularity of its ſtreets. In the northern and lower part, it has three indifferent churches of wood: the ſouthern part, on the oppoſite bank of the river, is partly built on an eminence, the ſummit of which was formerly occupied by a wooden fort. There are only eight decayed turrets remaining, and nine iron field-pieces with rotten carriages. In this curious fortification I could obſerve only a barrack in a ruinous ſtate, a ſmall church of ſtone, and adjoining it a vault, for the military cheſt and archives. Two ſmall churches of ſtone are built beyond the limits of the fort, and at the extremity of it, in a field, there is a wooden cloiſter, which alſo has a church. On the ſouthern ſide there is a deep foſſe, which runs beſide the Medveditza to Atkarſk, in a weſtern direction from the Volga. A ſtraight road leads from Petroſſk through Atkarſk over a common to Kamyſhenka.

Near Petroſſk we croſſed the little brook Stepnucha; and travelled over open, elevated ſteppes, diverſified with little hills and vallies, but almoſt deſtitute of wood, for twenty-five verſts to Mokroi. On account of the deep ſnow, the road thither was extremely difficult, and as a ſtorm with a fall of ſnow came on, we were obliged to remain here all night.

On the 11th we croſſed the brook Mokraya, after deſcending a very ſteep precipice: on this occaſion one of our carriages was overſet,

overſet, but without any material injury. Two verſts and a half from the village, the country riſes into mountains, divided by deep glens, covered with a conſiderable quantity and variety of wood, ſuch as oak, birch, aſpen, the linden-tree, and a diverſity of underwood. The brook Kutſhugur * has its ſource among theſe mountains. It flows into the Tſhardym, which diſcharges itſelf into the Volga. A deep glen renders this road rather difficult, as it proceeds along the declivity of a conſiderable height. Two verſts and a half farther we reached the Mordvinic village Orkino, ſituated in a deep valley, through which the brook Yelſhanka flows into the Kutſhugur. The hillocks and dales gradually grow ſmaller, and are almoſt without wood.

About eleven verſts from Mokroi, we paſſed over an extenſive dale, and croſſed the brook Sokura, which joins the Tſhardym; we then proceeded over high ground to the brook Burlovina; and again over ſeveral heights to the Sokura: the whole ſtage amounted to twenty-two verſts, when we arrived at the large village Golitzyn, which is called after the prince of that name. It has a church, and is inhabited by about one hundred Ruſſian families, and ſix hundred Malo-Ruſſians who have gradually joined the former. Theſe coloniſts, who voluntarily ſettled here, became tributary to the land-holder, and earn their livelihood chiefly as carriers. Their dwellings are more cleanly than thoſe in the villages through which we had paſſed; and though they are ſmall and made of clay, yet they are conveniently built,

* *Kutſhuguri* is a term derived from the language of the Tartars, and generally applied to ſuch hillocks as have a ſteep aſcent, and are covered with bruſhwood.——*Author.*

being

being furniſhed with chimneys, and the walls whitewaſhed within and without. Theſe villagers are good-natured, rather opulent, and poſſeſs numerous herds of cattle, of the Ukranian breed, generally marked with variegated ſpots; they likewiſe have flocks of Tſherkeſſian ſheep with long tails, excellent poultry of all kinds, and ſpirited horſes. The ſoil of this country is black and rich, inſomuch that, in ſinking wells, it has generally been found to conſiſt of a vegetable ſtratum not leſs than a fathom thick.

Near Petroffk, where the country gradually becomes lower towards the South, we obſerved a greater number of the ſouthern vegetable productions, which do not thrive in the colder government of Penſa. Of this nature are the dwarf cherry-tree of the Viſtula, the hawthorn, and the wild dwarf almond-tree; and we here again met with tulips. Two German colonies are eſtabliſhed in this fertile province, to the right of the Sokura, in Yagodnaya-Poläna and Pobotſhna;—at a great diſtance from their countrymen, who have ſettled on the banks of the Volga.

After paſſing over the Sokura, we met with conſiderable heights, which abound with wood, and divide the brooks of the Tſhardym from thoſe of the Kurdyum. Here our curioſity was gratified by the new and uncommon appearance of the trees, of which we had received an imperfect idea in the former part of our journey. The cauſe of this ſingular phenomenon is as follows. Severe hoar-froſts had commenced in theſe regions before Chriſtmas; and were followed by ſnow, mixed with rain, or ſleet, ſo that even the ſmalleſt branches of the trees were covered with ice an inch thick: by this all the flexible birch-

birch-trees had been bent to the ground in ſemicircles. Their tops and branches were thus buried under the continual ſnow, which lay upwards of a yard deep, and kept the trees in that recumbent ſtate. The inflexible full-grown birch and oak trees had been partly ſplit, and partly broken, by the weight of the congelations on their tops, while their collateral branches were alſo bent to the ground. The thaw, which began here towards the latter end of February, and the rays of the ſun, had indeed melted the icy incruſtations on the upper part of the trees, but it ſtill remained undiſſolved, on the branches which were fixed in the ſnow. The cylinders of ice, on one ſide, all appeared melted into a ſolid maſs, but on the lower part they were cryſtalliſed, ſome according to the uſual configuration of frozen water, in hexagonal and partly in rhomboidal figures, while others conſiſted only of hexagonal ſections. Theſe bodies were, like the well-known hollow cubes of ſalt, apparently formed of icicles of a pyramidal figure when inverted, broad on the ſurface, and narrow towards the inner part, where they were fixed in the ice. To afford the reader a more diſtinct idea of this remarkable phenomenon, I have given a repreſentation of a part of the foreſt in this ſituation, on the ſecond Vignette, which he will find at the concluſion of this ſection. I alſo learnt, that a ſimilar phenomenon was obſerved in many woody regions below Saratof.

From theſe high woodlands the road leads downwards to the brook Lopſhinovka, on the banks of which ſeveral ſmall villages are built; and a ſhort diſtance farther, after a ſtage of twenty-one verſts, we reached the village Khlebnovka, ſituated on a little brook which was completely cleared of ice. This

brook

brook receives from the neighbouring vallies, ſeveral ſprings that never freeze, and it flows towards the Kurdyum, in a ſouthern direction, through ſo warm a dale that the ſnow was partly melted, and the froſt had left the ground. This ſudden change of temperature was diſtinctly perceptible by the mild breeze which came from the valley, on a day when the cold had before amounted to ſeven degrees of Reaumur. Wild ducks had already made their appearance in this place. But ſcarcely had we aſcended the gently-riſing and lofty heights on the oppoſite ſide of the brook, which form the ſteppe extending fifteen verſts to the ſtage Kurdyum, and eighteen verſts towards Saratof, when we again found winter in its ſevere form. So much does the particular ſituation of countries contribute to the local varieties of climate.

The town of Saratof, where we arrived on the 12th of March, has increaſed much in trade and population, and conſequently in regular buildings, ſince the eſtabliſhment of vice-royalties, or provincial governments. This is the only town in Ruſſia where I have found the neceſſaries of life at nearly the ſame moderate prices as they were in the year 1773. It is remarkable, that in general, in all the places ſituate below Kaſan, on the banks of the Volga, the city of Aſtrakhan excepted, the prices of proviſions have not been conſiderably raiſed; becauſe neceſſaries are produced there in the greateſt abundance; and luxuries are not yet held in eſtimation. Even Aſtrakhan, and ſeveral diſtant towns, are partly ſupplied with grain from this neighbourhood; a ſupply to which the German coloniſts greatly contribute. Theſe coloniſts have, during the laſt twenty years, conſiderably increaſed, both in population and opulence, and

are now almoſt completely naturalized, or renovated; as the old ſettlers, who were in general rather immoral characters, are dead, and ſucceeded by a better and more vigorous progeny. The number of coloniſts who ſettled on the banks of the Volga, originally amounted to twenty-nine thouſand perſons; two thouſand of theſe gradually emigrated to different parts of the empire; about four hundred were carried into captivity by the Kirghis-kozaks during the troubles of 1773; nevertheleſs the preſent population of the German colonies on the Volga amounts to thirty-three thouſand perſons of both ſexes. They appear to be perfectly contented and happy, and to have no other wiſh than to be governed by magiſtrates acquainted with the German language, as many of the coloniſts are unable to ſpeak the Ruſſian. Nor would it have been an eaſy matter to chooſe a better and more comfortable ſituation for ſuch a colony in the Ruſſian empire; not only with reſpect to fertility, but alſo for a healthy and temperate climate. The winter is regular and moderate, with deep falls of ſnow; the weather of ſpring and autumn is generally wholeſome, and the ſummer is delightful. The various degrees of heat and cold here do not exceed twenty-ſeven degrees above and below the freezing point, and even theſe do not occur to ſuch extent every year. According to the obſervations of the Aulic Counſellor, Dr. Meyer, the average heat for the whole ſummer of 1792 was not entirely fifteen degrees; and the medium for the whole winter amounted to five degrees and five-eighths of heat. In ſuch a temperature all kinds of fruit thrive exceedingly well. Hence the Doctor was induced to eſtabliſh a nurſery of ſeveral thouſand fruit-trees reared from the ſeed, on a farm called Khutor, about twenty-

five

five verſts from Saratof. In order to ingraft with proper ſprigs, he procured them from the orchard at Herrenhauſen, belonging to the Elector of Hanover. They were ſent to him by the mail, and conſiſted of the following aſſortment: ten ſpecies of the beſt apples, fifteen ſpecies of pears, eight of cherries, ſix of plumbs, and ſeveral of peaches and apricots, all of which arrived ſafe in Ruſſia. They were ingrafted the following ſummer; and I had the ſatisfaction to learn by letter, that theſe fruit-trees are in a very flouriſhing ſtate. I have no doubt that the mulberry-tree would likewiſe thrive well in all the colonies eſtabliſhed below Saratof, if the planters were encouraged to rear it, by ſupplying them with ſeeds for nurſeries: but, at the ſame time, it would be neceſſary to diſtribute among them conciſe printed directions relative to the cultivation of the ſilk-worm, and that the reſpective clergy ſhould contribute their ſhare towards introducing and recommending this profitable branch of domeſtic economy.

I was in hopes of hailing the approach of ſpring at Saratof; but, contrary to my expectation, I found the ground covered with deep ſnow, and the froſt, which had ſucceeded the mild weather of February, was of ſuch intenſity and continuance, that I was obliged to avail myſelf of the uſual winter-road with our covered ſledges. We ſtaid only two days at Saratof, and on the 14th of March, continued our journey down to Tzaritzin, on the icy pavement of the Volga, which was nearly a yard thick.

The winter-road to Sinenki, forty verſts in extent, is made for the moſt part on the mountainous right bank, or *Nagornoi-Bereg*, partly on the river itſelf, and partly on its branches.

At the mouth of the rivulet Treſtſhikha we found a relay in readineſs for our conveyance: we ſlept at Sinenki, a place the population of which has increaſed to the number of nine hundred perſons, by new ſettlers from the diſtricts of Lomof, Naroftſhat, and other parts. From ſuch colonial eſtabliſhments the government of Saratof * has, during the laſt ten years, received new acceſſions of population; in conſequence of which ſeveral villages have been built in various parts, eſpecially ſince the common land has, by a more equal diſtribution, been divided in proportion to the number of inhabitants in the different diſtricts.

On the 15th we proceeded in the morning, along the Volga for ſeven verſts, to the German colony Soſnovka. Since the laſt thaw had rendered the ice of the river rather unſafe, the poſt-road had been made on a more ſolid bottom, through the foreign colonies. The inhabitants of Soſnovka are of the Lutheran perſuaſion; they have, at their own expence, built a ſmall church, and propoſe to appoint, conjointly with the congregation at Talovka, a common paſtor ſelected from the ſect of Moravian brethren, to whom they had ſent the vocation. It appears in general, that moſt of the German colonies on the banks of the Volga will gradually embrace the principles of that perſuaſion; and that the profits ariſing to the colonies at Sarepta from the ſpinning of cotton, have contributed to effect this religious change. The colony of Talovka at preſent

* According to the new diviſion of the Ruſſian Empire into vice-royalties, or governments, that of Saratof was compoſed of part of the old governments of Kaſan and Aſtrakhan, and particularly of the provinces of Simbirſk, Penſa, and Tambof.—*Author.*

conſiſts

conſiſts of ninety-two families; it lies in a low and extenſive valley, watered by the Soſnovka, which flows between ſtratafied mountains, and empties itſelf into the Volga. The ſloping elevations which encircle the valley, are interſected with irregular winding dells, overhung with clumps of dwarf-elms, oaks, and willows.

We found it extremely difficult to proceed, for three or four verſts, in the higher part of the dale; as the deep ſnow had been drifted into the narrow tracks of the road. Thence we paſſed over a common perfectly level, covered with deep ſnow, preſenting here and there the tops of buſhes, and extending for ten verſts, almoſt to the verge of the colony called Talovka. This colony is on the banks of the ſhallow Karamyſh which runs entirely through a level country, and here ſhews the difference between the current of the Volga and the Don. We arrived at the Karamyſh, about ſeven verſts from Talovka; it is a gently-gliding brook which, after joining the Medveditza, falls into the river Don. We now travelled in the direction of the Volga, which flows under a ſteep and high bank, for upwards of three verſts, through a gradually-declining valley. — Soſnovka conſiſts of eighty families, who have, at their own expence, built a ſmall church of wood.

In theſe as well as the other colonies on the Karamyſh, and in ſome of the lower ſettlements along the Ilovla, the want of fuel, previous to the year 1788, had been ſeverely felt. Since that time the inhabitants have learnt to make an artificial peat, compoſed of dung and ſtraw. This invention was ſuggeſted to them by Frederic Riſh, a native of the turfy iſland of Rugen, in the Baltic Sea, and now a coloniſt of Uſt-Salikha. The coloniſts can ſpare their dung for that purpoſe, as the looſe black

black ſoil requires only to be divided into fallows, to reſtore its fertility; and they have a ſuperabundance of ſtraw. The dung is gathered in heaps, and left to putrify during winter. After the firſt agricultural labours of the ſpring are finiſhed, this compoſt is carried to the water-ſide, placed ſeveral feet deep, on a dry ſpot, mixed with a proportionate quantity of ſtraw, and then trampled upon by horſes and oxen, till it form a compact maſs. When it is half dried in the open air, it is cut like turf into ſquare pieces, which are piled up till they are completely dried, and afterwards carried home, where they ſerve as a ſtock of fuel for the winter. This artificial turf has long been uſed by the Crim-Tartars; it burns with a flame not unlike ſea-coal, and imparts excellent heat, particularly to ſtoves and ovens for baking. Its ſmoke, however, is offenſive, and is with much difficulty excluded from the inner apartments. Five or ſix pieces of it are ſufficient to heat an oven; and a few men, with ſeveral pair of horſes or oxen, are able to prepare, in the courſe of a week, ſufficient fuel for the whole winter. Without this expedient, moſt of the colonies would be reduced to the greateſt diſtreſs for want of firing; inaſmuch as they have moſt injudiciouſly cut down and deſtroyed the ſmall quantity of wood, which they found on the lands at their firſt ſettling, without ever thinking of future exigencies. They would now be very willing to plant rows of the willow and poplar on their low grounds, if they could obtain permiſſion to fetch ſlips of thoſe trees from the iſlands of the Volga.

We proceeded from Talovka ten verſts to Bobrovka, a Ruſſian village on the mouth of the brook of that name, which there ſupplies a mill with water, and then falls into the Karamyſh.

Ten

Ten verſts farther we came to the colony of Uſt-Salikha, a ſettlement attached to the tenets of Calvin, and commonly called *Meſſer's Colony*, after one of the oldeſt ſettlers. The German planters generally denominte their eſtabliſhments after their elders, or firſt overſeers. This colony is compoſed chiefly of emigrants from the Palatinate, the principality of Yſenburg, and the adjacent German ſtates. — The whole country through which we travelled along the Karamyſh, conſiſts of high, though almoſt level ſteppes and the brook itſelf is ſhallow.

Ten verſts farther we reached the colony of Lyeſnoi Karamyſh, or Grim, where a few elm and alder-trees are ſtill left on the banks of the brook, but which are inſufficient to ſupply one hundred and ſixty-four families with fuel. Towards the Eaſt, on the left of our road, about thirty verſts from the Volga, the ſteppe riſes in gentle elevations. Here, at a few verſts diſtance from Grim, the rivulet Lyeſnoi Karamyſh, is formed by two ſmall brooks which flow from the Eaſt and South, and a third which meets them from the Weſt, near the ſettlement; hence, the German coloniſts call that rivulet *Dreyſpitz*, or the tripedal point: theſe heights become more lofty towards the colony called Roſſoſkhi. Near this place, at the diſtance of a few verſts from Lyeſnoi Karamyſh, is the eaſtern ſource of the Ilovla, called *Koſſoſkhi*, or original ſprings; becauſe this rivulet is formed by the confluence of ſeveral ſmall ſtreams, which deſcend from the heights aforementioned. Here it glides near the colony, amid a beautiful dale, and afterwards unites in a deep dell with the principal branch of the Ilovla, which almoſt in a line iſſues from an eminence in a North-

North-weſt direction, and in its deſcent ſupplies a mill with water.

The colony of Roſſoſkhi is ten verſts from our laſt ſtage, and was formerly called the French ſettlement. It has loſt much of its priſtine and pictureſque wildneſs; for the firſt ſettlers were a vagrant ſet of people, unworthy of ſo beautiful a ſituation; for they cut down almoſt all the buſhes, and converted the high grounds into arable land. The French coloniſts, however, have for the moſt part been permitted to emigrate to other provinces of Ruſſia, and are now ſucceeded by the more induſtrious Germans, who were ſelected from different ſettlements. Nevertheleſs, there are many houſes here uninhabited, and ſeveral of them in a very ruinous ſtate. The whole colony amounts to thirty-three families, including only four of French and Valonic extraction.

From this place, after aſcending a very conſiderable height, we travelled along the banks of the Ilovla, downward to the brook Yelſhanka, a diſtance of five verſts. The colony of the Huſſars, whoſe preſent ſtate is not the moſt promiſing, is ſituated on this brook. Somewhat farther, on our right, we deſcried the colony of Kopenka, or Vollmar; and ten verſts farther from Roſſoſkhi, we arrived at the Roman Catholic colony of Kamenka. This place is the reſidence of a prieſt, who is the paſtor of fourteen colonies of that perſuaſion, eſtabliſhed on the right bank of the Volga. Kamenka is one of the moſt flouriſhing and opulent among the Catholic colonies; it poſſeſſes upwards of ſixty fire-places; and has, beſides the brook, excellent water in wells, ſunk through loam and other

other ſtrata, about nine feet deep. We repoſed here during the night, having ſuffered much inconvenience the preceding day, from the intenſity of the heat, occaſioned by the reflection of the ſun-beams from the ſnow, accompanied with a keen north-weſt wind, which continued during the whole of our journey from Saratof. The Volga is not more than fifteen verſts diſtant, in a ſtraight line from this place.

On the 16th we arrived at the Roman Catholic colony of Panovka, which conſiſts of thirty-ſix farms, and has only the artificial compoſt before deſcribed for fuel. Near this place we ſaw another colony, called Ilovla, which, like the former, is not in the moſt promiſing ſtate. Indeed, it is remarkable that, here as well as in Germany, the Roman Catholic religion is attended with an unfavourable effect on the induſtry and proſperity of the inhabitants. At a ſhort diſtance from Panovka, we came to Uſt-Gräfnukha; a colony of ſixty-four families, provided with a mill and fifteen verſts diſtant from that of Kamenka. On this road, before we had paſſed Ilovla, we could ſee the extenſive colony of Karaulnoi Buyerak, which preſented a beautiful proſpect.

As Uſt-Gräfnukha is the laſt colony on the road to Kamyſhenka, and as the diſtance between thoſe places is forty-five verſts, a regulation has been made, that the colonies ſituated in a lateral direction muſt furniſh travellers with horſes on the ſtage, which is twenty-five verſts from the former, and twenty verſts from the latter place. But though we had ſent notice to that effect, no relay appeared; and as our horſes were too much fatigued to proceed over the mountainous track of country towards Kamyſhenka, we were obliged to viſit Protopopovka,

a mill and country-houſe belonging to a venerable old gentleman, Lieutenant-colonel Paſor, who lives here in philoſophic retirement, and who received us with every mark of hoſpitality. This rural abode is ſituated on an eaſtern creek of the rivulet Ilovla, in a beautiful plain, ſurrounded with ſloping hills richly covered with wood. The country along the Ilovla is more mountainous behind Gräfnukha; but we travelled for the moſt part through extenſive fens. About half way on our ſtage we paſſed a mill, and a beautiful orchard, erected and planted by the above-mentioned old gentleman, and ſold to one of the coloniſts. The incurvation of the Ilovla on which the poſt-houſe is ſituated, is remarkable on account of the ſepulchral hill which contains the remains of the unfortunate aſtronomer Lowitz *; but the wooden croſs erected on its top is decayed.

On the 17th in the morning we proceeded with the new relay, which had arrived during the night, to Kamyſhenka, or as it is now called, Kamyſhin. We aſcended a conſiderable and irregular height, after which we came to the low Krutoi Buyerak and the brook Krutiſh, where ſeveral inhabitants of Kamyſhenka have farms and gardens, and which clearly

* M. Lowitz loſt his life in a deplorable manner, during the rebellion in Ruſſia, while the rebels were ravaging the colonies of the evangelical brethren. Our naturaliſt was taken at Dobrinka, where he thought himſelf in perfect ſecurity; and dragged by a ferocious banditti to the head-quarters of their chief, on the banks of the Ilovla, where, in Auguſt 1774, he was impaled alive, and afterwards hanged. The companions and aſſiſtants of Lowitz, Ichonodzof and his ſon, effected their eſcape, carrying with them all his writings, and a part of his inſtruments. Several intereſting particulars reſpecting this learned traveller may be ſeen in *Büſching's Wöchentliche Nachrichten*, 1775, p. 56 & foll.

demonſtrates

demonſtrates the conſiderable difference between the level of the Ilovla that falls into the river Don, and the deep Volga. We travelled over another height, croſſed the brook Kamyſhenka, and advanced to the town and fortreſs of that name, where we arrived at noon, and repoſed the following night.

On the 18th we proceeded with a continued north-weſt wind and ſevere froſt, which was the more favourable, as it enabled us to travel with more expedition along the ice of the Volga. This circumſtance at the ſame time afforded me the pleaſure of examining the whole diameter of the high ſtratified hills which extend along the interſected right bank of the Volga, down to Tzaritzin. This bank is formed of precipices, riſing from five to ten fathoms above the level of the current; it has a ſloping declivity towards the baſe, from ten to twenty fathoms in breadth, and from ſix to nine feet perpendicular height: this declivity is overgrown with ſtunted white poplar and willow-trees, and is entirely inundated by the ſtream at high water. The ſteep bank almoſt in every direction exhibits frequent breaches, and in different places channels of different ſizes, which extend to various diſtances into the land, and conduct ſprings, rain, and ſnow-water into the river. Theſe channels ſink deeper every year, becauſe the floods waſh away the ſoft ſtrata. On the ſloping edges of theſe brooks, and on the ſoil projecting over the bank of the river, there generally grows a kind of dwarf or low wood, ſmall elms, and other umbrageous ſpecies of trees, but the lower ſides of the cliffs are overhung with black and white poplar trees and willows. The principal part of this ſtratified bank conſiſts of a yellowiſh ſand, in layers of different thickneſs, which are either in part or

entirely petrified, in ſome places frangible, and in others intermixed with a great variety of muſcle and other ſhells. According to this general deſcription, I ſhall endeavour to give the philoſophic reader a more particular account of this bank.

After paſſing the Kamyſhenka, which iſſues from a wide and ſteep glen, two verſts farther we arrived at the firſt, which is called the white glen, or *Buyerak Belinkoi*. The bank toward this place is from five to eight fathoms high, as it were precipitately torn down, and formed of white irregular ſtrata of ſtone, which are frequently a yard, and in ſome places upwards of a fathom thick, and occaſionally preſent obſcure traces of petrifaction. A few verſts farther, we came to the ſecond gulph, called Phtoroi Buyerak; after travelling another verſt, we paſſed the Lovetzkoi Buyerak; a verſt farther, we came to the fourth, or Tchetvertoi Buyerak, and at length to a ſmall collateral gulph. — For ſome diſtance the ſtratified ridge riſes boldly; then it gently and almoſt imperceptibly declines with all its ſtrata, running for a conſiderable ſpace of an equal thickneſs; it again becomes lower, ſo that eight verſts from Kamyſhin, near the Verſhnaya Seſtranka, it gradually declines to the level of the river. — From this place to Niſhnaya Seſtrenka the bank is ſcarcely two fathoms high; it then begins to riſe a little, and preſents at different intervals a few ſtrata of white ſtone.

The ice of the Volga was in ſeveral places dangerous, on account of the fiſſures we diſcovered, partly in the middle of this river, and partly near its banks. About ten verſts from Kamyſhenka we paſſed a ſmall cavern, and ſoon afterwards an uneven, furcated hill, called *Shiſkin Bugor*, forming a bank from ſix

ſix to ten fathoms high. This precipice preſents ſimilar ſtrata of white ſtone; but particularly near its baſe, where they are thinner and ſomewhat interrupted or confined, and marked with occaſional impreſſions of muſcle-ſhells. On the ſouthern ſide of the hill, the ſtrata of ſand are ſoft, and perforated by ſwallows; but on the verge of the bank, cloſe to the river at low water, there are a great number of large fragments, of an oval form, ſometimes two arſhines high, and full of impreſſions of bivalve muſcles. Theſe are maſſes, petrified by the accumulation of lime depoſited in a bed of ſand, and ſplit by the froſt, partly in lamina and in a tranſverſe direction, after they have been waſhed up by the water. — The ſouthern ſide of the hill extends to a great diſtance, and reaches to the Shirokoi Buyerak, or the broad glen, which opens itſelf fifteen verſts from Kamyſhin: below this follows a ſtill lower and indented bank, and near it riſes the Koſie Bugor, or the goat's hill, on the ſteep baſe of which we obſerved a number of broken layers. This hill terminates at the Koſie Buyerak, or goat's cave, and thence to the lower Koſie Buyerak there is only a low bank without any viſible ſtrata, becauſe the eminences gradually withdraw from the river.

After having paſſed thoſe glens, we arrived at what is called the *Antipofskoi Urotſhiſhtſhé*, where high ſtrata of ſand, with petrified maſſes of clay, lie mingled as far as the edge of the rivulet, and the glen *Antipovka*. Among theſe, eſpecially in the vicinity of Antipovka, we obſerved large conglomerate maſſes, intermixed with ſhells filled with ſandy matter, in a calcined ſtate, and almoſt conſumed. Here we found the common large criſpated muſcles, ſome bucardites, many tellenites, a multitude

multitude of turbinates of the large kind, and eſpecially whole ſtrata, full of ſmall ſtriped turbinates of one ſize and ſpecies, as well as ſingle volutites, entalites, and pieces of bone. In ſhort, all theſe marine ſhells are not the produce of the Caſpian Sea, but have probably been depoſited here by the deluge. We likewiſe found here conſolidated bodies of coarſe quartz-ſand, and the inner part appeared to be a ſolid maſs of quartz.—On this part of the bank, as far as Bolyklea, criminals are employed in cutting ſquare ſtones, which are thence tranſported to Aſtrakhan and other places, for the buildings of the Crown.

We were benighted at *Antipovka*. This place and the other eſtabliſhments were formerly inhabited by the Kozaks of Duboſsk, or Kozaks of the Volga, who, within the laſt fifteen years, have been ſent to the new colonial line of the Caucaſus: they are replaced chiefly by voluntary new ſettlers, who continually increaſe, ſo that ſeveral new villages have been built along the banks of the Volga. The boors that have moſtly re-peopled theſe villages, came hither from the governments of Penſa, Tamboſ, Voronetch, Kaſan, Moſco, Simbirſk, and other provinces.

On the 19th, with the dawn of day, we continued our journey along the Volga. Near Antipovka there is a glen called *Yaiſhnoï*, or the oval glen, which probably has received its name from the oval ſhape of the hill in its vicinity. Seven verſts from Antipovka we met with a very large glen, which, like moſt others, is termed *Wodänoſskoi*, and from which the neighbouring villagers fetch a beautiful, white, calcareous marl, for whitewaſhing their dwelling houſes and ovens.

ovens. Two verſts farther we paſſed two glens called *Rubeſhnye*, becauſe they conſtitute the boundary between Antipovka and Karavaina. Near theſe glens begins the large iſland *Guſſinoe*, or the iſle of geeſe, formed by the Volga, and extending beyond Karavaina. Here we obſerved the thick ſtratum of ſand on the bank, partly in a perpendicular precipice, with intermingled ſtrata of ſtone, partly covered with a green turf, and thinly ſcattered trees. Thirteen verſts farther, near the Vodänofskoi Karavainoi Buyerak, on the verge of the river, we again diſcovered numerous globular bodies of an iron-brown colour, ſimilar to a loaf of coarſe rye-bread, by the Ruſſians called Karavai: and from this circumſtance the ſurrounding country is called *Urotſhiſhtſhe*. Theſe maſſes project above the level of the river, and ariſe from a ferruginous ſtratum of ſand, the ſofter parts of which are waſhed away by the current, ſo that leaves on the bank, as well as in the glens, broken layers of a ruſty colour, and firmly petrified by the cryſtallizations of iron *.

A little higher in the Volga, there begins another iſland called *Bolſhoi*, or the great iſle, which extends farther than Karavainoë, a colony evacuated by the Kozaks, and re-peopled by ſettlers amounting to ſix hundred perſons. The diſtance

* On the Dutch and Engliſh coaſts, I have obſerved on the ſubſtances ejected by the tide, two different means of petrifaction operating at the bottom of the ſea, beſides the ſilicious ſulphat which is doubtleſs conſtantly produced there: firſt, the iron of ſhips' nails and anchors dropt into the ſea, which, by means of the ruſt, ſometimes cements great maſſes of ſhells, ſand, and cylindrical ſtones; and ſecondly, a petrified clay, of a dark blue colour, whoſe medium of combination appears to be hydrogen, or the inflammable principle.—*Author.*

between

between theſe places and the river Ilovla is computed at forty verſts. After we had paſſed two ſmall glens called *Balki*, which lie behind Karavainoë, and a moderately high ſand-bank, covered with broken layers, full of criſpated and other ſhells, we obſerved, near the Vataſhnoi Buyerak, or fiſherman's cave, that the ſtratum of ſand was apparently mixed with layers of clay and ſtone, riſing very high, ſo as to form a precipitous hill, termed by the peaſants *Raſin Bugor*, or the hill of Raſin. This elevation declines to a level towards the land, on which ſide there is a fortification ſaid to have been built by a captain of banditti, whoſe name was Raſin. Here we loſt ſight of the petrified layers, and the hill again declines near Dutkina Balka, whence the bank continues moderately high, and is interrupted by three glens. But near Sheltukhin Buyerak, there again begins a high ſand-bank, which in ſome places preſents large maſſes of ſtone. Amuſed by this variety of objects, we arrived at the colony Bolyklea, which now conſiſts of ſix hundred and thirty perſons, who have recently ſettled there. This colony is abundantly ſupplied with excellent wood from the oppoſite iſland, and the low country adjacent.

Beyond the inlet on the verge of which Bolyklea is ſituated, a low bank of ſand riſes and extends to the glen Suvet, in which ſome of the remaining, particularly the diſbanded Kozaks of the Volga, have erected cottages cloſe to each other, and live by gardening, agriculture, and fiſhing. Here the ſandy ſtratum again forms a hill, and exhibits petrified maſſes, till at length it terminates in a ſlope of a reddiſh iron colour, in the vicinity of a ſmall glen.

Two

Two verſts from Bolyklea the bank of the river conſiſts of ſandy ſtrata, which are yellowiſh at the baſe; and ſomewhat higher there is a ſteep ſtratum of white ſand, increaſing gradually towards the South, and above nine feet thick: this is covered firſt with an orange-coloured, and above it a grey, ſtratum of ſand. After extending ſome verſts, theſe ſtrata inſenſibly decline to the edge of the water, and are ſucceeded by a high bank of whitiſh ſand, which reaches to a dell, where a low point of land protrudes, behind which high ſtrata of ſand again riſe, and extend to Proleika.

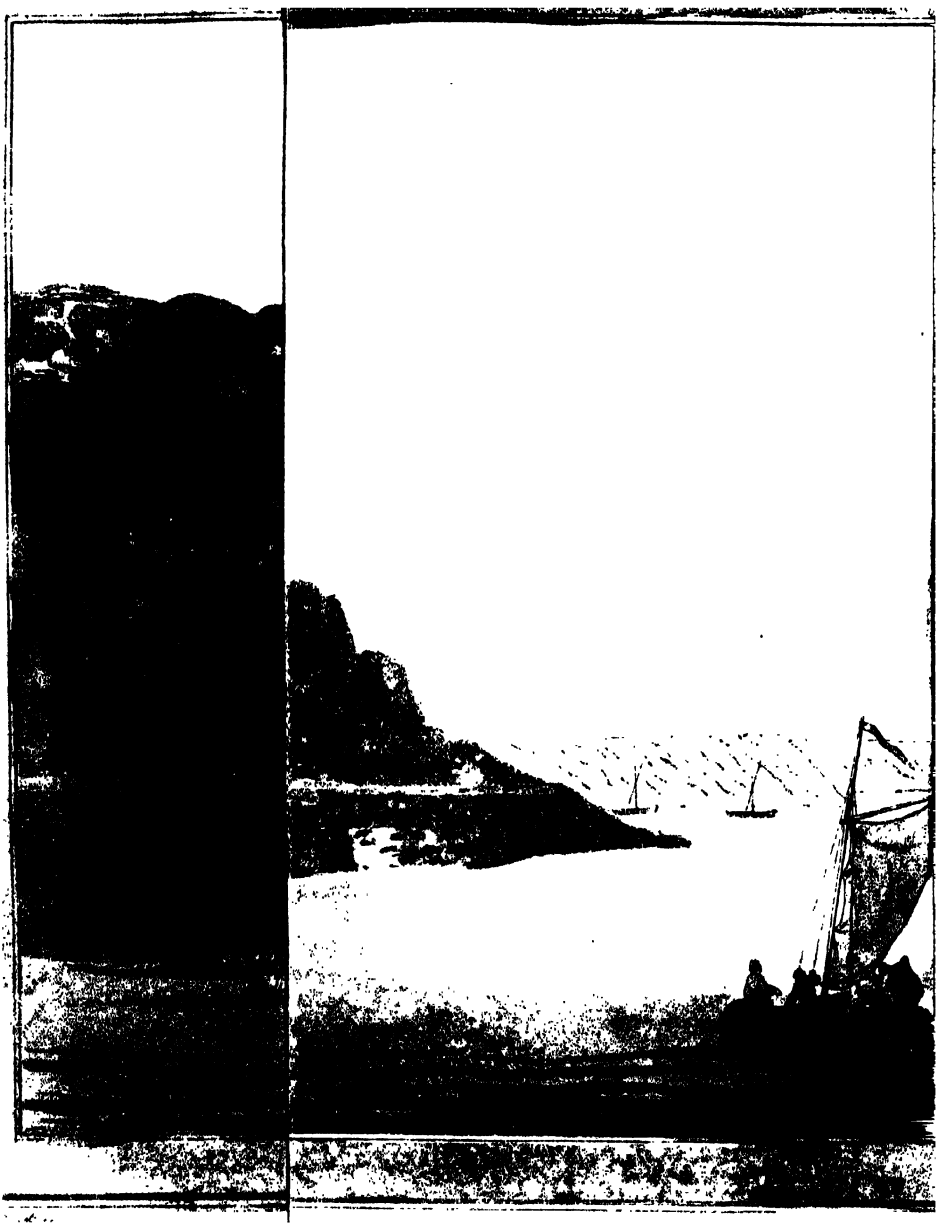
As the Volga, in this place, appeared to be rather dangerous for travellers, on account of the large fiſſures in the ice, in which ducks had already made their appearance, we reſolved to attempt a new road over the heights of the country. But we had ſcarcely advanced a verſt, when the ſnow, that lay a yard deep, obliged us to deſiſt, and night approaching compelled us to ſeek for ſhelter in the wretched habitations of the new ſettlers at Proleika. This village, notwithſtanding its extreme poverty, is remarkably populous; it has an extenſive and beautiful tract of arable land on both ſides of the valley, along which the houſes are built at ſome diſtance from each other. The inhabitants are but ſcantily ſupplied with wood.

On the 20th of March we were neceſſitated to continue our journey on the Volga, not without danger. Near Proleika the bank exhibits broken layers of ſtone ſimilar to thoſe we ſaw near Karavainoi. Then begins a ſtratum of yellow ſand, which becomes progreſſively thicker, and occupies the upper part of both banks: it is interrupted near the glen Sintſhukha. At the diſtance of a verſt and a half, it is again interſected by a ſmall

nameleſs glen, and a large valley, which on account of its cabbage-gardens has received the name of Kapuſtnoë; and laſtly, by another glen unnamed. The ſtratum of ſand-ſtone riſes continually, and forms the Strelnye-Gory, or arrow mounts, which aſcend from ten to fifteen fathoms above the Volga. Near Strelnoi Buyerak, cloſe to which theſe mounts begin, the cliffs project above the bank form a rocky wall running towards the glen parallel with the river, and terminate in a pinnacle like a turret. Beyond the glen, the rocks on the top of the bank exhibit various figures like buſts on pedeſtals, which project in a row from the bank; and a little beyond this, ten verſts from Prolcika, the high bank is interſected by a broad glen called Shirokoi Buyerak, which terminates three verſts farther, near the Vodänoi Buyerak, or watery glen. A village is now built on the edge of the latter; it is inhabited by about two hundred new ſettlers from the diſtrict of Gſhatzk, and other places.

Below Vodänoi the bank is ſomewhat lower; at the ſecond Sintſhukha-glen the ſtrata of ſand-ſtone again appear, and are partly formed by nature into curious diviſions of rock, like brick-work, ornamented with a variety of vaſes. Of theſe ſingular rocks I have attempted a delineation on the ſecond plate.

Towards the broad mouth of the rivulet *Olenia*, or the ſtag-brook, the lofty mounts of ſandy ſtrata retire. Here we were obliged to leave the right bank of the Volga, on account of a neck of land that runs into the river, and an extenſive ſand-bank, which was thinly covered with ſnow. We proceeded to a buſhy iſland, beyond which we again approached the right bank,



bank, near the mouth of the brook Peſkovatka, where we again met with ſandy ſtrata. Oppoſite this brook there is another iſland, on an elevated part of which the late Ataman, or Captain of the Kozaks, M. PORSITZKI has planted an orchard in a romantic ſituation. —The ſtrata now begin to decline with the current of the river; and from this neighbourhood iſſues a collateral branch of the Volga, called *Voloſhka*, on which is built *Pogrominſkaya Sloboda*. Farther down the river we reached *Dubovka*, formerly the principal ſeat of the Kozaks of the Volga: by the ſummer-road it is twenty-ſeven, but by the circuitous rout in winter almoſt thirty verſts diſtant from Vodänoi.

Here likewiſe a new colony has been eſtabliſhed, amounting at preſent to nearly one thouſand perſons, ſince the Kozaks of Dubovka were tranſplanted to the line of the Caucaſus, about ſixteen years ago. Three hundred of theſe coloniſts have enrolled their names in the liſt of burghers, or citizens, to evade the duty of furniſhing poſt-horſes and other impoſts: this circumſtance has given juſt cauſe of complaint to their colonial brethren, in common with whom they enjoy many immunities, both with reſpect to meadows and arable land. Beſides theſe ſettlers, Dubovka is inhabited by three hundred Kozaks, who have remained here partly as invalids, partly as minors, Malolyetny, or being too young for that ſervice, for which they have now voluntarily offered themſelves.

Below Dubovka, we came firſt to a glen with two entrances, called *Dvoinoi Buyerak;* then a ſmall nameleſs glen, and afterwards to Taraſſief Buyerak. Thence we travelled to

Verchnaya Pitſhuga, which preſents a broad foreland near its mouth, particularly along the ſtream. On this place, at ſome diſtance from the Volga, there is a mill, and a farm-houſe, the property of the College-Counſellor *Ryſſhkof*.—Below the Pitſhuga follows the Turäkofſkoi Buyerak, where a large fiſſure in the ice obliged us to withdraw acroſs the river from the ſteep bank, and proceed along the oppoſite buſhy iſland Pitſhuginſkoi. From this place we again travelled acroſs the river, where it forms an angle in a ſtraight direction to a glen, in which is ſituated Varſhina Vataga, twenty-five verſts diſtant from Dubofka. Here we changed horſes, and travelled, on account of the increaſing thaw, in the moſt expeditious manner poſſible towards Tzaritzin.

From the glen Varſhina the bank becomes much lower than before, being at the utmoſt from five to ſix fathoms high: lower down, gentle hillocks covered with wood adorn the banks of the river; among which the glen Kotlovoi Buyerak winds in picturesque beauty. After paſſing a point of land which protrudes into the river, we met with a moderately high bank, which was interſected by the mouth of the upper, and at a ſmall diſtance by that of the lower Metſhetna. Between theſe vallies a village has been built on an eminence, by ſettlers of different nations. Somewhat farther, along the bank of the Volga, on a riſing ground, the proprietor of this village, Colonel Zypletof, has a beautiful villa, with a garden well ſupplied with water. In this elegant retirement he enjoys the happineſs ariſing from the conſciouſneſs of his public-ſpirited exertions in ſuppreſſing the rebellion.

This

This gentleman was commandant of Tzaritzin, and rendered himſelf conſpicuous by his ſucceſsful defence of that place againſt the banditti led by the rebel Pugatſhef.

In this neighbourhood a branch of the Volga forms an inlet, called Akhtouba, which, although combined in various places with the principal ſtream, by ſmaller branches it continues to flow as a ſeparate river to Aſtrakhan and Kraſnoyarſk, where it falls into the Buſan. In the main river riſes an iſland, called either Daneſhnoi or Golodnoë, that is, the iſland of money, or famiſhment: the lower end of it was carried away by the ſtream about four years ſince. In this low country the Volga is ſubject to continual changes, both on account of the looſe texture of the ſoil, and the impetuoſity of the ſtream at high water.

Cloſe to the lower Metſhatna, on the mouth of which are erected ſheds for cattle, the bank is of a ruſty brown colour, both at its top and baſe. The lower ſtratum is a very hard ſand-ſtone, which in the glens has a ruſty ſurface, while the upper ſtratum is of a very looſe conſiſtence, and but ſlightly combined by brown ochre. This latter ſpecies of ſtone contains many bone-binders, or oſteocolla of long roots, partly of a ferruginous, and partly of a calcareous nature, but without coheſion; and the whole is ſo brittle that it readily crumbles to pieces between the fingers.

From the glen Bannoi to the Krutoi Buyerak, the ſtrata of ſand are partly petrified; and in ſome places we found thin ſtrata of ſtone during the remainder of our journey to Tzaritzin, which is computed to be thirty verſts diſtant from Varſhina Vataga.

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The lower banks, however, which continue to decreaſe on the whole road to Tzaritzin, and particularly towards the entrance of the lower Yelſhenka, conſiſt chiefly of clay between ſandy ſtrata. Near Yelſhenka theſe elevations of the old bank of the Caſpian Sea at length withdraw in a weſterly direction towards a bay, and terminate near the Sarpa in a point of land called *Moo-Chamnur*.

* * *

" The ſudden elevation of the ſoil, the ſandy ſteep declivity of the higher tract of land towards the deſart, the bays and promontories which it forms, and eſpecially the ſaline nature of the lower parts of the loamy ſteppe, every where interſperſed with marine ſhells—are circumſtances that lead to a very ſtrong conjecture reſpecting the former geographical ſtate of the three deſarts, known by the names of Kumanian, Kalmuk, and Yaikian. Theſe barren regions are ſo exactly ſimilar, that the extenſion of the Caſpian Sea over them in former ages, and its communication with the Black Sea, appear highly probable. This hypotheſis receives additional corroboration from the ingenious TOURNEFORT *, who is of opinion, that the Black Sea had been formerly ſeparated from the Mediterranean; that the water of the former is much above that of the latter; and that the deſcent of theſe waters into the Mediterranean had taken place at the time of the Deucalionian flood.

* Relation d'un Voyage au Levant. Tom. i. p. 80. Tom. ii. p. 63, 64, et ſeq.

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" We have the following inconteſtible proofs, that the Yaikian deſart, as well as thoſe of the Kalmuks, and the Volga, have been formerly covered by the waters of the Caſpian Sea: firſt, the innumerable ſhells, which are ſcattered in every direction of theſe deſarts, exactly reſemble thoſe of the Caſpian Sea, and are not to be met with in the rivers; ſecondly, the uniformity of the ſoil, in all theſe barren regions, which, except the quickſands, conſiſts merely of ſand or yellow loam, combined with marine mire, without even a blade of graſs, or any mineral ſtrata, and with a bed of clay at a conſiderable depth from the ſurface; thirdly, the general ſaline nature of this ſoil, which obviouſly contains common ſea-ſalt; and fourthly, the numerous ſalt-pits and lakes, nay, even the flat ſurface of this extenſive deſart throughout. Though theſe plains have been abandoned by the ſea many centuries ago, they have not yet acquired a black ſoil, or turf, nor produced any trees or buſhes. This ſterility is owing to their dry ſituation in a hot climate, and to their peculiar ſaline nature: and, being ſupported by a clayey ſubſtratum, theſe regions could, in ſuch a ſtate, produce ſcarcely any thing but ſalt and marine plants; which, from their nature, afford but a ſmall proportion of earth to the large quantity of ſalt they contain.

" It is farther probable, that the high country between the Don and the Volga, and along the Sarpa, as well as the heights between the Volga and the Yaik, now called Obtſhei Sirt, have been the old banks of the extenſive Hyrcanian Sea. For in this high tract we meet horizontal ſtrata; the ſoil is not impregnated with ſalt; the ſurface is covered with a ſolid turf, and preſents a pretty thick layer of black mould; nay, marine ſhells

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are not diſcoverable here. On the other hand, it ſhould be obſerved, that farther up along the Volga, where the country becomes more mountainous, we find whole banks of ſhells and corals; but this change of objects muſt have proceeded from a much more ancient and general Deluge of the Earth; for all the marine productions of theſe ſtrata are of ſuch kinds as are not to be found in the Caſpian or Black Seas, but exiſt only in the abyſs of the ocean.

"From theſe obſervations the queſtion naturally ariſes, By what event or phenomenon of Nature the Caſpian Sea could have ſuddenly loſt ſo much water, that the extenſive and flat deſarts, from the lower Don to the Yaik, the Yaik to the ſea of Aral and the mountains of Moguldſhar, that riſe beyond that ſea and are a ſouthern continuation of the mountains of Ural, have become a dry country? This is the more remarkable, as the deſart itſelf is certainly upwards of fifteen fathoms higher than the preſent ſurface of the Caſpian Sea, which is always uniformly ſupplied with water from numerous rivers, and in which, for many years paſt no decreaſe has been perceptible.

"Tournefort has endeavoured to prove, by very cogent arguments, that the mountains of the Thracian Boſphorus were formerly connected, and formed a natural mound which ſeparated the Black Sea from the Mediterranean, ſo that the waters of the former, ariſing from the great rivers Danube, Dnieſtr, Dniepr, Don, and Kuban, became a prodigious lake, much higher than the Mediterranean Sea, and even the ocean; that after the burſting of this ſtrong boundary, either by an earthquake or the preſſure of the accumulated water, the Black Sea diſembogued

diſembogued itſelf impetuouſly into the Mediterranean, till it acquired the proper equilibrium; and that, on the firſt impetus of this deluge, a part of Greece, and the iſlands of the Archipelago were overflowed and deſolated by the inundation which appears to have taken place, according to the beſt hiſtoric authority.—Theſe arguments admitted, we ſhall be enabled ſatisfactorily to explain the former decreaſe of the Caſpian Sea; and the evident traces of its original height likewiſe corroborate Tournefort's opinion. For, in the firſt place, the high country, like a bank, borders on the low ſaline plain along the Sarpa, and progreſſively retreats from that river, and terminates in a precipitous point of land near the ſource of the rivulet Manytſh, which flows towards the lower Don. This rivulet begins about one hundred and eighty verſts from the ſource of the Sarpa, in a low plain above twenty verſts broad, of a moiſt ſoil, much impregnated with ſalt, and interſperſed with ſalt-pools: it flows through a low weſtern country, and after running about one hundred verſts, paſſes through a dry plain which extends, as far as the ſteppe of the Crimea, towards the Don. At the beginning of this plain there are two conſiderable ſalt-pools, well known to the Kozaks of the Don by the name of Svätye Oſera, or the holy lakes. Between the ſources of the Sarpa and the Manytſh, the high country preſents projecting banks of ſand towards the Weſt, while the Eaſtern region is an uniformly flat ſteppe, diverſified at its commencement with wave-like ridges that riſe above the high land, which abounds with intermediate ſtagnant pools. This plain ſtretches beyond the Manytſh, through an high country, that declines to a level tract between that rivulet and the Kuma: it extends almoſt to the ſource of

that river, and is bordered by the promontory of the Caucaſus. Here, therefore, the Eaſtern ſteppe which exhibits traces of the retreat of the Caſpian Sea, is connected by low countries with the ſteppe of the Crimea, and other plains towards the Black Sea; all of which, as far as I could learn, are of an homogeneal nature with the former, and generally contain an equal proportion of ſalt.

"If, then, the Black Sea, previous to its efflux through the ſtrait of Conſtantinople, was many fathoms higher than it is at preſent, it follows, that the whole ſteppe of the Crimea, the Kuban, the Volga, and the Yaik, as well as the plains of Great Tartary, which extend beyond the lake Aral, have probably been only one general Sea. This Sea flowed round the northern point of the Caucaſus in a narrow and ſhallow channel, the traces of which are ſtill perceptible near the rivulet Manytſh, and formed two vaſt and deep bays near the preſent Caſpian and Black Seas. The rivers which rapidly poured in from regions then uncultivated, rich in wood and abounding with water, have probably in ancient times contributed in a conſiderable degree to this efflux of the Black Sea. In thoſe ages, the ſeals, the various ſpecies of ſturgeons, and other fiſh of that Sea, ſuch as the *Atherina*, or ſilver-fiſh, the *Syngnathus pelagicus*, or needle-fiſh, and the indented muſcles, could eaſily enter the Caſpian Sea; which, according to its preſent ſituation, is too remote from all other Seas to admit a tranſmigration of theſe animals into its waters. On the tranſmiſſion of the Black Sea through the Propontis, a great part of its ſhallow banks conſequently became a ſaline ſteppe; and the Caſpian Sea, being connected with the Black Sea only by a ſhallow ſtrait, was thus ſeparated

ſeparated and became a confined inland lake. This phenomenon may be eaſily accounted for; as the water of the Black Sea fell lower than the bed of the ſtrait; the Caſpian did not receive ſo many deep rivers as the Black Sea *, and was no longer ſupplied with the waters of the latter; ſo that by the retreat and evaporation of the water from the low banks, a ſtill greater extent of land was left bare, and hence this Sea was circumſcribed in narrower limits. Perhaps then only the communication, which it formerly had with the Sea of Aral, was totally interrupted. The ſand-banks became drift-ſand, which accumulated into hillocks, ſuch as appear in the ſandy tracts of Naryn, and the lower Volga. On the dried bed of the Sea, the former iſlands appeared like ſmall ridges of mountains, ſuch as thoſe of Inderſk, and ſeveral others of a ſimilar form; and after the ſea had retired from the low ground, many hollows remained covered with water, and formed the ſalt-lakes and marſhes which to this day we frequently find on the ſteppe.—

"An objection may be raiſed againſt the decreaſe of the Caſpian Sea, however obvious and ſtriking, if we give credit to the report of travellers who mention the diminution of its banks near *Baku*, and that it overflows a part of that town. For, to judge from the nature of the phlogiſtic mountains of that neighbourhood, it is highly probable, that a ſinking of the ſoil and

* The rapid current of the Dardanelles affords to me a proof, that the Black Sea receives more water from its rivers than it can evaporate. For even admitting that the oppoſite current remarked in the deep parts of the ſame channel, contains ſea-water more impregnated with ſalt, it is ſtill obvious, from the well-known and decreaſing ſaltneſs of the Black Sea, that this current is leſs conſiderable than the principal ſtream.—*Author.*

the mountains has taken place there, without any increaſe of the Sea. All the countries on the northern part of the Caſpian Sea tend to prove that it has decreaſed, and probably continues to decreaſe in a greater proportion than the Mediterranean and other Seas. It is poſſible, however, that the ſeparation of the Caſpian from the Black Sea, and the exſiccation of the ſtrait which united them, have ſucceeded very gradually, and at a much later period: without admitting the conjecture that this Sea had burſt its bounds, while the ſeparation, as is generally believed, was effected merely by the decreaſe of the waters of theſe Seas. After their communication was interrupted, the difference of the influx from their rivers might have operated in a ſimilar manner, and thus have reduced the ſurface of the Caſpian Sea far below the general level of the Ocean.

"In the extracts made by STRITTER, from the writers of Byzantium, I met with a paſſage which induced me to believe, that the low country on the northern baſe of the Caucaſean Mountains, where, in my opinion, the two ſeas had formerly been connected, were not completely dry in the fourth and fifth centuries of the Chriſtian Era. PRISCUS, who accompanied the embaſſy ſent by the Oriental Emperor Theodoſius, in the year 449, to Attila King of the Huns, relates *, upon the verbal authority of a meſſenger who was returning to the Court of the Weſtern Emperor, that the Scythians and Huns uſually purſued the following courſe when they invaded Perſia: "They "marched," ſays he, "firſt through a deſert country or ſteppe,

* *Memoriæ populorum olim ad Danubium, Pontum Euxinum, Paludem Mæotidem, Caucaſum, Mare Caſpium, cet. incolentium, e ſcriptoribus hiſtoriæ Byzantinae erutæ et digeſtæ a* J. G. STRITTERO, *Tom. i. p.* 513.

"then

" then croſſed a moraſs," which the Romans have, however improbably, confounded with that of Mæotia, " and afterwards " continued their march over a chain of mountains, ſo that in " fifteen days they arrived in Media." I wiſh, however, to propoſe this only as very doubtful authority, eſpecially ſince the traces of the Caſpian Sea are leſs falacious. A natural conſequence of this decreaſe is the well-known lowneſs of its ſurface compared with that of other Seas: this circumſtance inconteſtably proves the difference between the current of the rivers Don and Volga; particularly where they flow in a collateral vicinity to each other; the current of the Don being viſibly ten fathoms higher than that of the Volga.—The diſproportion between the high banks of the Yaik and the Volga, in a level country, affords another argument in ſupport of my conjecture, and a proof of the real decreaſe of the Caſpian Sea. The low ſituation of this Sea may be farther aſcertained by the extenſive courſe of the river Volga, which, though it riſes in a Ruſſian province, ſituated little above the uſual level of the Sea, has not a ſlow but rather a rapid current.

" From the preſent appearance of the high country, it is evident that even during the former connection of the Black and Caſpian Seas, the mouths of the rivers Don and Volga muſt have been very different from what they are at preſent. The former fell into the Sea ſoon after its union with the Donetz, and the latter in the vicinity of Dmitreſſk.—The Manytſh apparently points out the channel of the waters, which, from their higher ſituation, retreated with the greateſt rapidity towards the Black Sea; and according to the maps, the northern coaſt of this Sea is frequently interſected by ſimilar traces, ſome of which

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at preſent are rivulets, and others dry dells. The ſteppes on the banks of the Caſpian Sea alſo exhibit ſimilar traces, though the ſlower decreaſe of the water there, has produced leſs perceptible effects. Perhaps even the ſuppoſed ancient bed of the Oxus, which is ſaid to exiſt between the Sea of Aral and the Caſpian Sea, is only another trace of the retreating waters.

" Whoever examines the country along the Sarpa, from the nature of its ſurface, will readily embrace my hypotheſis, and conſider it as highly probable. And if an accurate menſuration were made of the ſituation and boundaries of the high country, not only that from Tzaritzin, and Dmitreffk, through the ſteppe of the Kalmuks in a N. E. direction, but likewiſe S. W. from the Sarpa towards the river Don, and through the ſteppe of the Crimea, I have reaſon to believe that we could pretty accurately determine the *former limits of the Black and Caſpian Seas*, in thoſe ages when they formed one body of water.

" I could ſtill allege many incidental arguments in corroboration of what I have here aſſerted. But that I may not be thought too prolix, I ſhall only mention two remarkable appearances near the verge of the high country: theſe will clearly demonſtrate that a Sea really exiſted here in former times.

" The firſt, is a ſandy concretion, combined with calcareous matter, on the declivity of the prominent angles of the ſandy promontory called *Moo-Khamun*, near the colony of Sarepta. As this concretion appears to have taken place from the effect of the ſalt water and its calcareous conſtituents, which may be eaſily recogniſed in the feculence or foam of the ſea; and as this production ſeems to have been formed by being alternately moiſtened and dried on the ſhore, I venture to affirm that it might

might even ſerve to determine the former height of the Sea.—Towards the South, under the upper ridge of the ſandy heights, there lies a narrow border of indurated and, as it were, candied white ſand, which is partly diſpoſed in ſtrata, partly in conglobate and cylindrical maſſes of different ſizes, which, not unlike calcareous *oſteocolla*, exhibit traces of iron-coloured roots that pervade their axis. This border is only about an ell broad, and in many places narrower, as it extends into the contiguous mountain, which conſiſts merely of a light drift-ſand. The neareſt part of this foſſil border, when meaſured by the ſurface, is five hundred and fifty fathoms diſtant from the Sarpa, and I found its perpendicular elevation over the whole flat ſteppe, on the banks of that river and the Volga, when compared with their currents, to be thirty-nine fathoms and an arſhine; an elevation which the adjacent country and its hills exceed by ſeveral fathoms.

"As a ſecond argument for my conjecture, I ſhall mention, that the vitriolated layers of mire ſtill exhibit traces of ſea-weeds and marſhes: they extend along the banks of the middle *Elſhanka*, twelve verſts from Sarepta, particularly where the high country approaches the Volga and forms a deep valley. Theſe beds of mire were examined by Profeſſor GMELIN, who cauſed two perpendicular deep ſhafts to be ſunk in them, till the miners arrived at a ſtratum of clayey ſand, which forms their baſis. Every naturaliſt, though unacquainted with the ſtriking circumſtances before mentioned, would doubtleſs pronounce theſe narrow layers of vitriolated earth to be the remains of a ſea-moraſs, formerly overgrown with ſedge."—Vol. iii. pp. 569—577.

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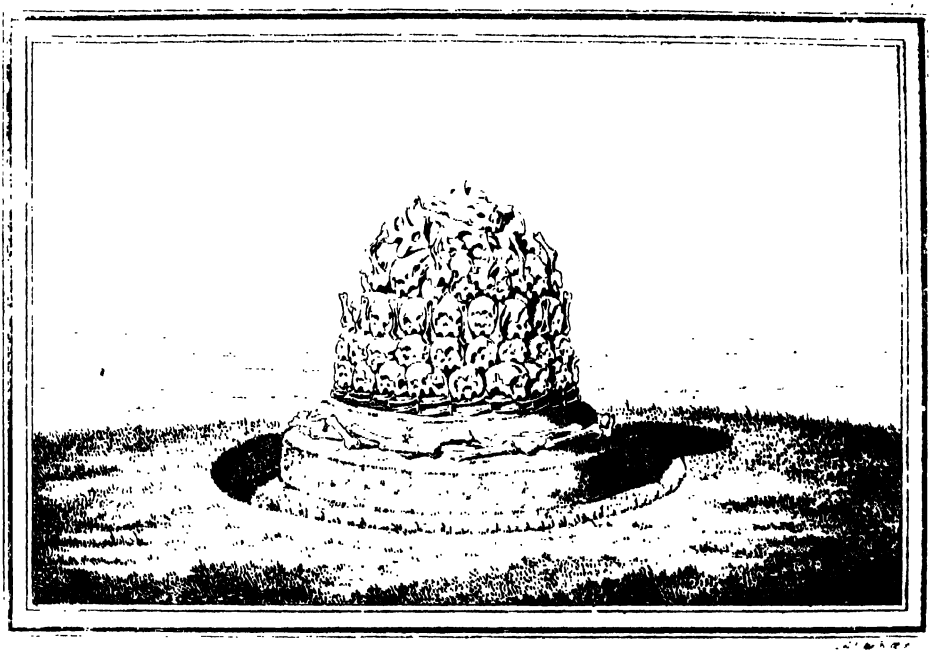
We were entertained with this great diverſity of objects during our winter journey to Tzaritzin, where we arrived early in the afternoon on the 20th of March, in froſty weather. The earth was ſtill covered with deep ſnow; and the ice on the river was ſolid. In former years, at this ſeaſon, and in theſe ſouthern regions, according to the natural viciſſitudes of things, the ſummer fields were ſown, cattle grazed on the freſh paſtures, and the firſt plants of ſpring uſed to be in full bloom. The cold North-Eaſt winds, which ſucceeded thoſe from the North-Weſt, continued with ſerene weather through the whole month of March, and the night-froſts were ſo intenſe, that the meridian ſun could ſcarcely ſoften the earth.



Remarks during Excurſions along the Southern Volga.

THE firſt birds of paſſage, ducks, ſtarlings, and even wild-geeſe, had ſhewn themſelves in February, but had again diſappeared. Wild fowl of different kinds, particularly the red mountain ducks, which uſually fly in pairs, we now obſerved in the fiſſures of the ice; and the birds of prey hovering ſingly in ſearch of their quarry. The ſnow-hammer and winter-lark remained here till the ſecond of April, before they emigrated to the northern regions.

At length, after a long and ſevere winter, two calm foggy days intervened with the new-moon of April; the wind changed to the Eaſt, and brought on a permanent thaw. Thus,

in the beginning of April, all the ſnow which lay on the eaſtern and ſouthern ſides of the heights ſuddenly diſſolved; the water ruſhed into the rivulets, and formed rapid torrents, which precipitated themſelves into the Volga. The ice of this river now became very unſafe, being ſplit in many places. We now remarked the arrival of all the birds of paſſage, among which were an incredible number of birds of prey, flights of ſwans, ſtarlings, and geeſe of different kinds; the firſt ſwallows on the fourth of April; and ſeveral other birds either arriving hither, or withdrawing to the North.

On the 6th of April the ſtreams of ſnow-water almoſt entirely ceaſed to flow, and the high lands began to dry: we ſaw in every direction the tulip, and the *Bulbocodium vernum*, or mountain-ſaffron ſprouting forth, while the firſt chafer and *Citillus*, or mountain-mouſe, awoke from their brumal ſlumber. On the 7th of April the *Charadrius gregarius* arrived in numbers, and on the ſame day the ice of the Volga broke up completely; the thaw being accompanied with a warm rain. Vegetation now proceeded ſo rapidly, that on the 8th of April we were agreeably ſurprized to ſee, in the warm low grounds and vallies, the following flowers in full bloom, viz. the *Fumaria bulboſa*, or great bulbous fumitory; the *Viola odorata*, or ſweet ſcented violet; the *Ficaria*, or leſſer celandine; the *Ornithogalum luteum*, or the yellow ſtar of Bethlehem; the *Scilla amoena*, or agreeable ſquill; the *Tulipa ſilveſtris*, or tulip of the woods; the *Tulipa biflora*, or double flowered tulip, and the *Bulbocodium vernum*. On the 9th a white crane, or *Grus Leucogeranos*, by the Ruſſians called Starkh, was ſhot on the oppoſite bank of the Volga: this bird was probably very old, as his back, and the extremities

extremities of his wings, were adorned with feathers of a deep golden colour.

After this ſudden change of the ſeaſon, I began to prepare for my botanical excurſions on the ſouthern bank of the Volga; and my firſt journey was to the colony of evangelical brethren at Sarepta, or Sarpa, where I ſtaid till the 18th of April, and then gradually proceeded on my journey towards Aſtrakhan.

With reſpect to Tzaritzin, I can add but little to what I have ſaid of this place in the third volume of my former Travels. Except the newly erected booths, I found its buildings little if at all improved. But as in the ſummer of 1793 the greateſt part of this town had been laid in aſhes, it is to be hoped that it will be rebuilt on a more elegant and regular plan.

"Tzaritzin is, next to Aſtrakhan, the firſt inhabited, and moſt ancient fortified place on the Lower Volga.

"It is ſituated cloſe to the mouth of the ſmall rivulet Tzaritza, on the right bank of the principal river, which, a little farther up the ſtream, forms an iſland called Deneſhnoi, and on the left ſide ſends forth a ſmall collateral branch called the Akhtouba. To the right of the fortreſs the Volga divides itſelf, and forms another iſland, which has received the name of Sarpinſkoi Oſtrov, from its extending beyond the mouth of the Sarpa. This rivulet joins the main river upwards of fifteen verſts below the iſland, which abounds with wood, and has excellent meadows: there are ſeveral houſes built on it. According to the old mode of building, the fortreſs conſiſts of a high mound and baſtions, without any outworks, and declines toward the ſteep

bank of the Volga, which is ſtrengthened by palliſades. It is ſeparated from the eminences that extend along this bank, by a ſpacious plain which occupies the angle between the Volga and the Tzaritza; yet ſo unfavourably that theſe heights command the whole fortreſs. The works, which had been much decayed, were lately repaired by Turkiſh priſoners quartered near the fortreſs in ſubterraneous huts: they have rebuilt the fort, and ſtrengthened the covered way with palliſades. This reſpectable ſtate of defence was of great ſervice in the year 1774, when lawleſs bands of boors and Kozaks infeſted this neighbourhood; for Pugatſhef, the leader of the rebels, attacked the town of Tzaritzin without ſucceſs, and was obliged to relinquiſh the attempt. The numerous train of heavy artillery then in this place, and deſtined for Azof, but which, on account of the exceſſively bad roads, could not be tranſported to the Kumanian deſert, contributed to this effectual defence.

"The inner buildings of the fortreſs are indifferent, and it contains ſcarcely any good dwelling-houſes: in ſhort, the whole town, and even one of the three churches, are built of wood. The market-place is extenſive, and contains a great number of ſhops, becauſe the trade of the town is much benefited by travellers, and Kalmuks. I found many wealthy merchants in this town, who carry on their itinerary trade the whole ſummer with the hordes of Kalmuks, and beſides derive great profits from the neighbouring fiſheries. The lower claſs of the inhabitants maintain themſelves by rearing cattle, by the cultivation of cucumbers, ſugar, and water-melons, which almoſt ſpontaneouſly thrive in this climate, and by fiſheries, as well as by their emoluments as carriers. But there is a great want of mechanics

mechanics and artificers at Tzaritzin; a circumſtance from which the neighbouring German colonies of Sarepta derive conſiderable advantage. The number of Kozaks in the fortreſs conſiſts of only one hundred men, who are merely employed as eſcorts: for the poſt ſtations, and what is called the line of Tzaritzin, are defended by the Kozaks of the Don. When I viſited this place in Auguſt 1773, the garriſon was compoſed of a ſmall body of light troops of the line, and ſome incomplete battalions of militia *, among which were a number of officers, who had been diſmiſſed, but were now employed on garriſon duty. The Commandant of the fortreſs was formerly entruſted with the civil government of the burghers, and the diſtrict of the country which, however, is but thinly peopled. But in the year 1713 the High Directorial Senate appointed in this place a Court of Chancery for the management of civil and economical affairs; an inſtitution which promiſes to become more important, on account of the increaſing population.

"Beyond the limits of the fortreſs, along the Volga, and towards the eminences which divide the plain from the bank, there is an irregular ſuburb, inhabited chiefly by Kozaks, who ſome years ſince built a ſtone-church, which they were obliged to demoliſh, when the rebels made the attack beforementioned.

"Before the preſent fortreſs was erected, ſmall redoubts, the mounds of which are ſtill to be ſeen, were raiſed near the brook Tzaritza; where the indolent Kalmuks, even to this day, dig up

* The author calls them *garriſon troops*, in contradiſtinction to the *troops of the line*, which generally conſiſt of the talleſt and moſt robuſt men, while the former are of an inferior ſize: but this diſtinction being unknown in England, we have preferredthe term *militia*, eſpecially as they are reſerved for home ſervice.—*Tranſl.*

numbers

numbers of muſket-bullets, and old ſilver kopeeks. The line of Tzaritzin, which conſiſts of a ſtrong wall of earth, is defended on the ſouthern ſide by a foſſe and paliſades. It begins at the fortreſs and runs over a deep glen, through which the rain-water flows into the Tzaritza: the wall is continued over the two brooks Metſhetna, which fall into the Volga above the town of Tzaritzin, and extends, without interruption, to the river Don, which is only ſixty meaſured verſts from the Volga. On this line of defence are raiſed four ſmall redoubts, called Metſhetnaya, Gratſhi, Sokora, and Donſkaya, between which, at proper diſtances, are guard-houſes, fortified with chevaux de friſe. The whole line is defended by the Kozaks of the Don, who are ſubordinate to the Commandant of Tzaritzin.

" The country around Tzaritzin abounds with every production of Nature, and is far ſuperior in this reſpect to the whole arid tract of land bordering on the river Volga. Although the parts contiguous to mountains, and the plains of the high country, are not all equally favourable to the growth of corn, there are many extenſive regions which, notwithſtanding the drought of this climate, would produce plenty of grain, on account of their internal humidity; but are injudiciouſly cultivated for no other purpoſe than that of rearing water-melons. This fruit arrives at great perfection in a ſoil that is peculiarly favourable to the vine, as well as to every other ſpecies of fruit the culture of which requires a hot climate. In ſhort, all kinds of vegetables could be raiſed in the gardens of this country, to an uncommon ſize and of the richeſt flavour, if properly attended to. Many plants grow wild here, which are not to be found in

in the higher tracts of the Volga, nor in other parts of Ruſſia. The wild pear-tree thrives very generally in the vicinity of Dubovka. The mulberry-tree flouriſhes without any artificial aid in the low wilderneſs near the Akhtouba, and ſeems to be indigenous there, and in the dells a long the Sarpa. Tamariſks, and the *Clematis orientalis*, firſt appear as native plants in the vicinity of Tzaritzin, and wild plum-trees are common on the banks of the brook Manytſh and the river Kuma. Chervil, or the *Scandix cerefolium*, is found in the Tſhepurnik and other glens along the Sarpa; and Dittany, or the *Lepidium ſativum*, grows wild on the higher nitrous ſoil near that rivulet, and in the vicinity of Sarepta. I have ſown the *Phaſeolus radiatus*, the ſeeds of which I obtained from China, in an uncultivated melon-garden near Sarepta; it flowered early, like all other Chineſe plants which delight in a hot climate, and produced its ſeeds in the greateſt perfection, in the month of Auguſt; though LINNÆUS ſays, that this plant does not flower nor ſeed in Sweden, except in the moſt powerful hot-beds. The dwarf almond, the plum-tree, and ſome other vegetables, frequently bloſſom a ſecond time in this country, during autumn. The heights afford excellent paſturage, while the iſlands and the marſhes between the Volga and Akhtouba produce abundant crops of hay. There is alſo ſufficient fire-wood obtained from the low grounds; and timber is readily procured from the higher tracts, by the eaſy inland navigation. The ſoil is very favourable to the culture of mulberry-trees, which might be raiſed in extenſive plantations: their leaves being valuable for the nutriment of the ſilk-worm, by which conſiderable

conſiderable quantities of ſilk might be produced."—Vol. iii. pp. 638—641.

By an accurate meaſurement I found, that the ground on which the fortreſs of Tzaritzin ſtands, is one hundred and twenty-ſix Engliſh feet above the loweſt water-mark of the Volga; and that the heights which extend thence along that river, form a ſtill greater perpendicular elevation.

The upper part of Glubokoi Buyerak, or the deep glen, which interſects the firſt eminences above Tzaritzin, extends to the aforementioned line of defence, and becomes deeper every year. Towards the baſe it firſt preſents beautiful dark grey ſtrata of fine clay; next theſe is a lighter grey, lamellated Fuller's earth, interſperſed with irregular layers of ſand, and above them variegated ſtrata of ſand and clay, intermixed with pebbles of various colours: but on the upper part, where the water has ſcooped out a cavity in form of a baſon, there is below the loam a ſtratum of the moſt beautiful, uniform, and delicate quartz-ſand, of a milk-white colour, ſuch as is held in the higheſt eſtimation by manufacturers of glaſs, and ornamental gardeners.—Theſe mingled and variouſly broken layers ſufficiently prove, that the ſurface of the hilly country conſiſts of ſtrata precipitated by the ſea, and carried thither by the force of the water.

It will perhaps not be unacceptable to the reader, when I add a comparative table, ſhewing the higheſt point of the inundations of the Volga, during a ſeries of years, ſince I formerly viſited this country; the calculations having been annually made by the

the military engineers ſtationed in Tzaritzin. From the year 1775 to 1792, the Volga exceeded the loweſt water-mark, as follows:

	Feet	Inches.		Feet	Inches.
In the year 1775,	39	2	In the year 1784,	27	4
1776,	26	3	1785,	25	2
1777,	25	10	1786,	28	1
1778,	25	9	1787,	27	6
1779,	27	10	1788,	30	10
1780,	25	8½	1789,	31	3
1781,	26	6	1790,	26	9
1782,	26	0	1791,	25	2
1783,	27	1	1792,	28	6

It appears from this table, that ſince the years 1772, 1773, and 1774, when the Volga roſe nearly forty feet, its waters have not ſince riſen to that height. But I will not decide, whether the ſmaller quantity of ſnow and rain that had fallen in the higher countries, the greater evaporation of the Caſpian Sea, or the progreſſive extenſion and cavities of the different mouths of the river, have produced this deviation from its former riſe. Perhaps all theſe cauſes have co-operated to effect that change, and perhaps the higheſt ſwell of the water is, like the weather, ſubject to periodical variations.

Since my former journey to theſe regions, government has endeavoured to coloniſe the deſert of Aſtrakhan. Several villages have been built on the banks of the Volga, even above Tſhernoyarſk; others on the Sarpa, on the ſources of the Sall,

and along the borders of the river Kuma. Theſe villages are moſtly inhabited by Ruſſians, except a few, in which Tartars, Tſhouvaſhians, and people of other tribes, have ſettled, ſuch as could be collected from different provinces which lie to the South and Eaſt of Moſco. Between Tzaritzin and Sarepta, we paſſed a handſome village, called *Otrada*, or "Recreation," together with an excellent mill, vineyards, and dwelling-houſes, built for the convenience of a ſummer reſidence, in a pleaſant ſituation, on the banks of the lower rivulet Yelſhanka, where it interſects the high country. This elegant ſpot is the property of the Lieutenant-general and Senator Nikita Aphanaſſievitch Beketof, a very active economiſt. On the poſt-road, cloſe to the banks of the Volga, he has eſtabliſhed a conſiderable colony of emigrants from Ruſſia Minor. But the barrack, which formerly ſtood near this colony, and which lately had been let to the viſitors of the mineral well at Sarepta, was demoliſhed in the ſpring of 1793, and its materials employed for other purpoſes. The indifferent accommodations which patients met in this barrack, have been freely deſcribed in Boltin's Account of the Medicinal Waters of Sarepta, publiſhed in the Ruſſian language.

The ſoil is ſufficiently fertile on the declivity of the high lands in theſe regions; though intermediate ſaline ſpots occur, where the ſeed neceſſarily periſhes. Senator Beketof has endeavoured to fertilize thoſe ſpots by manuring them; but I adviſed him to make experiments for the amelioration of the ſoil by lime, or by an admixture of calcareous marle, which would probably decompoſe the neutral ſalts, and diſengage the alkaline particles of the ſoil.

Otrada

Otrada is the firſt place in Ruſſia where white muſtard has been cultivated on a large ſcale; where oil is expreſſed from it, after it has been decorticated in hand-mills, and the mealy part which remains is uſed like Engliſh muſtard: it is by no means inferior to the latter, and is exported to foreign markets. The great profits ariſing from this branch of rural economy, and the proceſs of the manufacture, have been circumſtantially deſcribed by Senator Beketof, in the Tranſactions of the Free Economical Society at St. Peterſburg for the year 1796. And it deſerves to be remarked, that muſtard generally produces ſixty-fold crops, and that the oil and flour of muſtard exceed the value of wheat in a ſimilar proportion.

The mill built on the eſtate of Otrada is an extremely complicated piece of machinery, which was firſt announced in 1796, by the Economical Society, and of which a minute deſcription and repreſentation will be given in the next volume of their Tranſactions. I ſhall, therefore, in this place only mention that the lower Yelſhanka, near its deſcent from the high lands, is dammed in for the purpoſe of ſupplying the mill, and that almoſt the whole of the ſtream, after paſſing through the ſluices, is farther employed for watering the fields and gardens.

Although *Sarepta* had, ſoon after my former journey to theſe regions, in 1773, been plundered by the rebellious bands of Pugatchef, yet I found it conſiderably improved, beautified, and in a ſtate of increaſing proſperity. The market-place is regular, and adorned with elegant buildings; particularly the church, and the well-built manſions of the Moravians, which forcibly ſtrike the eye, as they are repreſented on the third plate: next to theſe are, *a*, the beautiful houſe of the Superintendant;

b, the reſpectable dwelling appropriated to the widows; *c*, the market-houſe; *d*, the inn; the manufactory of candles, and the diſtillery of corn-ſpirits. The market-place has a fountain in the centre, which is ſurrounded by a grove; and the ſquare itſelf, with the principal ſtreets, are beautified with rows of poplar trees. The water of the fountain, which ariſes in the neighbouring farm, marked *e*, had been much increaſed by another ſpring brought from the village Shönbrun; but as this water was very inferior, it has again been ſeparated, and conveyed through pipes into every ſtreet, ſo that the inhabitants have the beſt water from the fountain for drinking, while they are conveniently ſupplied, by the other ſpring, with that for common uſe.

The number of valuable inhabitants has been much increaſed, not only by new ſettlers, but alſo by natives: all the houſes in the ſtreets of Sarepta are built partly of ſolid materials, partly of wood, and adapted for two families under one roof. The internal increaſe of the colony is, however, not ſo conſiderable as it would be, if the late marriages, conformable to a cuſtom of the Moravian Brethren, were nō impediment to population: many of the unmarried ſiſters are conſigned to a ſickly life, or an untimely grave; and other uſeful members of the community are carried off by difficult parturition, to which females married at an advanced age are generally ſubject. The inhabitants nevertheleſs enjoy a good ſtate of health, ſince they have become accuſtomed to the climate; and they alſo appear to be perfectly ſatisfied with their lot in the world. Every family has ſufficient cattle, and ſmall gardens along the Sarpa, which are made with much labour by carrying ſoil thither

thither from the ſurface of the high deſert. In preparing a garden, the upper ſtratum of ſandy marle is firſt mixed with the ſubjacent layers of clay and the interſperſed calcareous marle: this compoſt is thrown on the banks of the Sarpa, which are farther conſolidated by hurdles. The ſaline quality of the ſoil is corrected by rain and ſnow-water, and by frequent waterings from the Sarpa, ſo that the intermingled ſoil is thus prepared for the production of all kinds of culinary vegetables, for plantations of tobacco, fruit-trees, and the vine.

Several of the inhabitants have made a proſperous attempt in the cultivation of the vine. Among others, the vineyard belonging to the widow of the late Doctor Weir, that eſtabliſhed by M. Nitſchmann, an apothecary retired from practice, and particularly that of the preſent Phyſician to the Colony, Dr. Seydel, a very worthy and benevolent character, all deſerve honourable mention. This gentleman has with great expence eſtabliſhed the moſt extenſive garden on the right bank of the Sarpa, and he is indefatigable in its improvement. He has planted a conſiderable vineyard with above one thouſand productive vines; beſides an orchard; a kitchen-garden; and is ſtill more remarkable here, he has been ſucceſsful in rearing from the ſeed a pretty large pleaſure-wood of birches. His vines are diſpoſed over bowers and arched walks, on a ſouthern declivity, and produce a white and a reddiſh wine of good quality. He has alſo planted a conſiderable number of mulberry-trees, with a view to introduce the cultivation of ſilk by the worm. The *Elæagnus latifolia* endures the cold of winter in his garden, without any covering.—It is only to be regretted, that the friends of horticulture, in this place, are ſtill in want

want of good ſpecies of cherry, plum, and other fruit-trees, which they might eaſily procure by importing foreign ſhoots, and ingrafting their native trees.

The beſt wine produced here, which is ſimilar to Champaign, is that of M. Nitſchmann, who is a perſevering and judicious botaniſt; he takes uncommon pains in preſſing and fermenting his wine, by collecting the white Hungarian grapes of his favourably ſituated vineyard, plucking them from the ſtalks, and keeping the firſt juice ſeparate, of which he annually obtains about twelve barrels: the remainder he paſſes through the preſs, with the addition of water, and converts it into an acidulated drink, or vinegar. He has obſerved that, on account of the luxuriant growth of the deep-rooted old vines, their branches ought to be lopped ſo as to leave ten, twelve, and even fifteen eyes, becauſe the lower buds are uſually unproductive, while the upper ones frequently have three ſhoots from two to three fathoms in length, each of which bears two or three bunches of grapes. After a few years, he cuts down the old vines, which are almoſt a foot in circumference, and replaces them with vigorous plants two years old. Moſt of the cultivators of the vine, in this country, are now convinced from experience, that they cannot obtain a good vintage, without following his ingenious example.

M. NEITZ, a Surgeon, has likewiſe planted a new vineyard near a ſpring, on the declivity of the high land, where it forms the angular point called *Moo-Khamur*. But a common garden which the unmarried Moravian Brethren have commenced in a valley, is not in a promiſing ſtate for either wine or fruit, but may be productive of culinary vegetables. The valley is called after

after a rivulet, Tſhepurnick, or the brook of herons; which flows from the heights near the village Shönbrun, and glides in a ſouthern direction to the Sarpa.

The moſt remarkable manufactories carried on by the United Brethren are the following: nine or ten looms for weaving handkerchiefs of a mixed texture of ſilk and linen; eight looms for manufacturing cotton ſtockings and ſtriped night-caps, which are in great demand for the women of the Kozaks. Among the ſtocking looms imported from Voigtland, a province in Germany, there is one conſtructed of wood, ſimilar to thoſe made at Obernhau, in a mountainous part, called the *Erzgebürge*, in which the *echappement* is ſupplied by the peculiar mechaniſm of an indented ſpiral wheel. The former of theſe looms coſts in Germany from ſixty to ſeventy dollars, or from ten to twelve pounds ſterling; while the latter, of wood, is bought on the ſpot for twenty-eight dollars, or about four pounds ten ſhillings.—There is likewiſe here a ſmall manufacture of Mancheſter-goods, ſuch as velveret and calico, which are made in great perfection, but cannot be ſold as low as thoſe imported from England.—Without mentioning the leſs important trades, as goldſmiths, watchmakers, bookbinders, ſhoemakers, taylors, and others, I ſhall only obſerve, that the cotton yarn uſed in the forementioned manufactories is alſo dyed here, for which purpoſe a particular work, for dyeing Turkey-red and Indigo-blue, and a ſmaller work for dyeing the Mancheſter-goods, are eſtabliſhed in this building. The Turkey-red is here treated with oil; but the colour is inferior to that produced by the Armenians at Aſtrakhan.

Next

Next to the houſe of the fraternity, there is a tan-yard, in which the thinner kinds of leather, and ſtrong hides for ſoles are prepared; adjoining to this is the carpenter's yard, the baking houſe, and at a ſmall diſtance the ſlaughter houſe, both built of ſtone. Cloſe to theſe, the United Brethern were, during my ſtay here, employed in building a ſtone-kitchen, furniſhed with every convenience. The main building itſelf was enlarged by an additional wing, in the erection of which, however, the garden has been deſolated and covered with rubbiſh.

In the houſe inhabited by the United Siſters, beſides the uſual female employment of ſewing, waſhing, and other domeſtic occupations, handkerchiefs are now manufactured, and various articles of embroidery finiſhed with uncommon ſkill and elegance. The garden, which the Siſters cultivate without any aſſiſtance, is a pattern of induſtry, cleanlineſs, and regularity.

The diſtillation of corn-ſpirits, and manufacture of candles, are important branches of trade carried on by the colony, and the latter is particularly profitable, as the candles of this place are ſent to St. Peterſburg, and thence exported to diſtant countries.

The mill belonging to this colony has, in its preſent improved ſtate, a ſawing mill, as well as an excellent flour mill, of two lofts on one ſide for grinding wheat, and on the other ſide two lofts for rye-meal, and a ſtamping mill for millet. Double wheels have been placed over each other, to connect the machinery with the upper wheel at high water, and thus keep the mill continually going. In the year 1783, the dam of this valuable

valuable mill was ſwept away by the extraordinary riſe and preſſure of the water of the Sarpa.

The brewery repreſented on the third plate, and marked *f*, is at ſome diſtance from the colonial houſes, on the banks of the Volga, and is a moſt profitable branch of buſineſs. The ſale of beer is very conſiderable in the inn, on account of the numerous tranſports which paſs through this place to Aſtrakhan. In autumn 1792, before the ice on the Volga had acquired ſufficient ſolidity to ſupport loaded ſledges, no leſs than ſixteen thouſand nine hundred of theſe vehicles, each drawn by one horſe, paſſed through Sarepta. —The ingenious inhabitants of Sarepta brew a kind of beer from their very abundant and cheap water-melons, with the addition of hops: they alſo prepare a conſerve or marmalade from this fruit, which is a good ſubſtitute for ſyrup or treacle. Perhaps a tolerable wine might be made of melons, by proper management.

The chemiſts of Sarepta have, for ſeveral years paſt, followed a proceſs of purifying the common ſalt obtained from the lakes of this country, and by the natives called *Buſun*. This highly purified ſalt is ſold at a moderate price, and would be a profitable article of commerce.

A few years ago the *Mus decumanus*, or grey wall rat, came in numbers to Sarepta, and purſued their journey, after ſwimming over the milldam, in open day, towards Tzaritzin. The *Citillus*, or mountain mouſe, multiplies daily, and is very pernicious to the crops produced by the induſtry of the huſbandman.

The Italian and common poplar, as well as different ſpecies of the willow, flouriſh in this neighbourhood; and there is no

 doubt

doubt that, as they grow luxuriantly from ſhoots, theſe uſeful trees might eaſily be reared, even on the dry ſteppes, if they were properly watered in the firſt ſummer. In Tſhernoyarſk I remarked with pleaſure, that the new-planted trees were covered with ſlips of old bark, by which they were not only kept cool in hot weather, and their tender bark ſecured from cattle, but the circulation of the ſap was more freely conducted to the uppermoſt eyes, or buds, where the foliage was of the greateſt importance to the growth of the tree.

Vernal Journey to Aſtrakhan.

THE firſt village below Sarepta, on the banks of the Volga, is *Lutſhki;* the ſecond, according to a former regulation of ſtages, is *Tatianovka*, or *Svetloi Yar*, which ſignifies *the ſhining bank:* the latter is twelve verſts from Sarepta, and has received its name from the high naked bank on which it was built. The deſert, over which we now travelled, produced great numbers of early white and yellow tulips, the *Tulipa biflora* and *ſilveſtris*, which grew partly intermingled, and partly in ſeparate cluſters. We proceeded farther along a ſteep bank, from which we beheld the low country overſpread with multitudes of wild-fowl. In theſe regions the road is frequently made on the very

edge of a precipice formed by glens or banks, becauſe this part of the height ſooneſt becomes dry in ſpring. But as the froſt of winter, and the ſubſequent rains of ſpring, looſen pieces of theſe banks, ſcarcely a year elapſes without dangerous accidents occurring to travellers, inſomuch that ſometimes men, horſes, and waggons are precipitated with the falling bank down the ſteep. An accident of this kind happened the preceding year to an inhabitant of Sarepta; but he had the good fortune to ſave his life together with that of his horſe, though the cart was ſhattered to pieces.

About eighteen verſts farther the new village of *Popovitzkaya*, or *Raigorodok*, is ſituated at a ſmall diſtance from the ancient poſt of Popoviſka, and inhabited by the burghers of Tzaritzin, who formerly were ſcattered over this dry region. We left the Volga at this place, and travelled over a flat ſteppe, on which we obſerved many ſepulchral hillocks. Here, as in the whole of this country in general, the mountain-mice notwithſtanding their ſmall ſize, have thrown up the earth in conſiderable heaps. On our journey weſtward from this place towards the Sarpa, we were informed that about ſeven verſts from Popovitzkaya there were ſeveral ſepulchral elevations, or *Kurgani*, vaulted with bricks. Theſe the peaſants break up, and carry away to make their ſtoves. After leaving this field of death, we again approached the Volga, and paſſed the Peſtſhanaya Balka, or ſand-pit, towards Yerſhova Vataga, and Naſoniſtſhef Yar, where a ſtore-houſe of fiſh is eſtabliſhed. The hip-bone of an elephant, and ſeveral ivory teeth have lately been found here, on a precipice of the bank. A Kalmuk brought me an imperfect grinder of an old elephant, which he had found in a glen of the ſteppe.

ſteppe. From this place to Yerſhova Vataga is reckoned ſeven verſts, and about three verſts farther there is a farm containing four houſes for rearing cattle, on the manor of Naryſhin. The major part of the nobility, or proprietors, who have divided the lands on the banks of the Volga, pay little regard to either population or tillage. They only endeavour to maintain their right of poſſeſſion by inconſiderable eſtabliſhments, in order to derive ſome advantage from the fiſheries.

After travelling eleven verſts, I paſſed the night of the 18th at *Solotnikofskoi*, or *Salnikova*, a village ſituated near Solotnikova Vataga, and which was formerly the only one in this neighbourhood. Above the village is Yablonnoi Buyerak, or the apple glen, the bottom of which, between the thickets, was now covered with young chervil, which grew on a black mould. We had before obſerved this herb near Sarepta, in what is called the chervil glen. The ſandy marl of the ſteep banks of Yablonnoi Buyerak, is interſperſed with numerous indented muſcles ſimilar to thoſe of the Caſpian Sea, and which probably have been depoſited by the Ocean. The large and ſteep Solänoi Buyerak, or ſalt glen, is about four verſts below the village, and extends, with two of its dependent branches, a conſiderable way into the country. Every ſpecies of marine plants grow along the ſides of this glen in abundance; but at the bottom the *Ulmus pumila*, which is of a conſiderable ſize, and the *Thlaſpi arvenſe* and *Burſa* were the only plants in bloſſom. I obſerved on its ſteep banks ſeveral layers of Fuller's earth, of an orange colour, above the ſandy ſtrata, and mingled with well-preſerved ſhells, like thoſe of the Caſpian Sea. On the ſouthern ſide we ſaw the *Tulipa biflora* and *ſilveſtris* already fading, and the *Scolopendra*

Scolopendra morſitans creeping through the chinks of clay. Near this formidable glen, the criminal enterprize of the Rebel Pugatſhef for the laſt time proved unſucceſsful. He had taken a poſition contiguous to Vataga, and occupied the ſmall redoubt which had been eſtabliſhed for the poſt-ſtation. But the well-directed attack of General De Michelſon, and the fire of his cannon loaded with grape-ſhot, ſoon put the rebels to flight, and precipitated whole bodies of them into the glen, and down the banks of the Volga, where they were driven together and deſtroyed. Between the village and the glen, there are a great number of ſepulchral hillocks which, as it appears, have been ſo amply filled with dead bodies, that their tops have ſunk into the form of a baſon.

The population of the village Solotnikova is two hundred perſons, being all that remain of five hundred, who were formerly tranſplaced from the northern parts of the governments of Uſtyug and Vologda to what is called the Kumanian road; but in conſequence of the ſterility of that region they were ſent hither. The heat of the climate has deſtroyed a part of theſe ſettlers, but the ſurvivors are now accuſtomed to it, and are in great arrears to the Crown, from their idle and unſettled mode of life, and the obligation they are under to liquidate the taxes of their deceaſed relations.

The diſtance from Solotnikofskoi to the village Kamennoi Yar, or the ſtone bank, is about eighteen or twenty verſts, and two verſts farther there is a poſt-ſtage. This village, which is ſituated near Kamennaya Vataga, is built in a glen, and belongs to the merchant Koſtromin. Its inhabitants conſiſt of Tartars, Tſhouvaſhians, and other nations, who were eſtabliſhed here, and

ſubject

ſubject to ſimilar obligations with the new ſettlers before mentioned. On our approach within a verſt of this village, we obſerved the ridge of a ſteppe, which formed ſome hillocks, extended obliquely from the Weſt, and terminated on the high and ſteep bank of the Volga, called *Kamennoi Yar.* This ridge contains a grey-coloured ſlaty ſtratum, nearly ſimilar to that of Kamyſhenka, which is recommended by Lovitz for hygrometrical plates. No trace of this argillaceous earth is to be ſeen on the oppoſite bank of the Volga; but, according to its direction, it appears to belong to the horizontal ſtratum which is found in the ſteppe on that ſide, under the names of Bogdo, Tſhaptſhatſhi, and others. There is a cavern of no great importance in the ſtony bank of this place.

Koſtromin has employed a Ruſſian mill-wright to conſtruct a windmill near this village, after the model of thoſe of Aſia: it has a horizontal wheel, to which a kind of mats or ſails are faſtened: but the mechaniſm is ſo badly executed, that the mills for grinding meal and groats, which form the lower part of the machinery, being connected with the former, are almoſt uſeleſs. I ſhall have occaſion to deſcribe theſe mills more particularly.

We ſaw only the early tulip, and the ſmall *Ranunculus*, which perfectly reſembles the *R. nivali*, in bloom on the ſteppe. We met this day a large flight of curlews on their paſſage from the northern regions. In the afternoon, and part of the following night, I travelled the remaining ſixty verſts to Tſhernoyarſk; and in all that extent of road I did not meet with a ſingle village. I paſſed the Väſovka, which had been deprived of its bridge by a torrent of ſnow-water, and towards morning

morning arrived at Tſhernoyarſk, where I remained the 20th; as in conſequence of the continued cold weather, and the check which all the plants had received in their vegetation, I was unable to purſue my botanical reſearches.

We obſerved, however, in the ditch of the fortreſs, the *Ranunculus falcatus*, *Ornithogalum bulboſum* and *luteum*, *Sinapis rubella* *, *Alyſſum calycynum et minutum*, and *Taraxacum*, in blóſſom. The earlieſt inſects here are the *Papilio daplidice*, and different ſpecies of *Silphæ* and *Hiſteres*. I had before obſerved the *Phalargium arancodes*, or ſcorpion-ſpider, moving in the crevices of the clayey bank of the Volga; and ſeveral other inſects on the ſteppe. In all dwelling houſes, the *Muſca vibrans* crept about in ſwarms upon the windows. The birds which we moſt commonly met with in the dry deſert were kites, which flew in ſmall flocks; a ſmall kind of falcons, the red duck, buſtards, crows, jackdaws, magpies, great and ſmall larks, and ſtarlings. The inhabitants of all the towns and villages of the Volga make cylinders of bark, which they place on poles in the farm-yards, to entice theſe birds to build their neſts there. On the barren and dreary ſteppe of theſe environs, ſcarcely any plant is ſeen but the *Anthemis millefoliata*, and the *Achillea tomentoſa*, between the two moſt common ſpecies of wormwood, *Artemiſia maritima* and *Artemiſia contra*. This laſt plant indicates the moſt barren ſoil impregnated with ſalt, a ſoil which produces only the flowers of the *Tulipa biflora*. The *Tulipa ſilveſtris* bloomed on the verdant and more fertile ſpots: this flower grows to a very large ſize where the ſoil is moiſt, and conſiſts

* *Raphanus tenellus*. PALLAS's Travels, Part iii. Supplement, page 741. N. 105. Tab. 50. Fig. 3.

ſometimes

ſometimes of eight or ten leaflets, and is ſometimes double. The *Ornithogalum luteum*, on the contrary, is dwarfiſh throughout this ſteppe; and we only ſaw the firſt leaves of the *Verbaſcum Phœniceum*.

Tſhernoyarſk is built in the form of a grand polygon, compoſed of five entire, and two half baſtions. It is ſituated on the ſteep bank of the Volga, and ſurrounded by a dry, wide, but not very deep foſſe, ſtrengthened with palliſades. This fort has but one gate-way which is on the ſide towards Tzaritzin, and ſo narrow that a waggon with three horſes abreaſt can ſcarcely paſs through it. On this ſide there is a ſuburb, beyond which, on the ſteppe, is a cemetery with a conſiderably large church built of ſtone, with two towers, adorned with gilt cupolas. Tſhernoyarſk is a place of ſome conſequence; it is well built within the limits of the fort, has a good trade, and opulent inhabitants, the principal part of whom are employed in a very lucrative and extenſive fiſhery.

The Volga is here of a conſiderable breadth, notwithſtanding ſome ſandy iſles that riſe from its bed, and a large ſtream called Volodimerovka, that branches from it towards the Eaſt. A high wind cauſes the waves of the Volga to beat upon the ſhore with ſuch force as I ſcarcely ever have ſeen equalled, except in the river Thames, below London: at high water the Volga is ſaid to riſe here to about thirty feet. Several bivalve ſhells of the Caſpian Sea are found in great numbers on the high bank of this river. This bank principally conſiſts of a ſandy marl, and ſome ſmall flat ſtones of a light yellow clay are ſeen here: they ſwim for ſome time on the water, and are about the ſize of a ruble or florin. Selenite is found here

ſcattered in cryſtals, as well as in ſeveral other places on the bank of the Volga.

I continued my journey on the 21ſt. The ſepulchral hills of the Tartars are common in the vicinity of Tſhernoyarſk; but they are generally empty, and on that account have remained undiſturbed. Perhaps they are the tombs of the later or Nagay Tartars. The beautiful low country *Soläniкovo Saimiſtſhe*, which lies beſide the fortreſs, ſwarmed at this time with innumerable aquatic birds, ſuch as geeſe and ducks of all kinds, cranes, herons, and kites, which fly in numerous flocks.

The diſtance from Tſhernoyarſk to the advanced poſt of Gratſhefskoi is thirty-two verſts; and on our way we aſcended ſome ſandy heights. Towards the poſt of Vertlanſkoi, diſtant thirty-three verſts, the ſteppe became more ſandy and hilly. The violent ſtorm from the S. E. which always accompanies the ſpring in this region, began on the 20th, and increaſing this day, blew the duſt and ſand directly in our faces.

After having paſſed Kopanofskoi, the neareſt town of the Kozaks, diſtant twenty-one verſts, we again came to a clayey ſteppe. The *Tulipa Geſneri*, of a bright red and yellow, had begun to blow here in great abundance: its leaves were exactly ſimilar to the early tulip commonly called *Duc van Toll*. The *Tulipa biflora* was already beginning to fade. The nights, however, ſtill continued cold, and we ſaw fire on the ſteppe, at a conſiderable diſtance*.

On

* The ſteppes are frequently fired, either by the negligence of travellers, or wilfully by the herdſmen, in order to forward the crops of graſs; or, it may be, out of malice, as ſome years ſince the Kozaks of the Yaik did; when, having riſen

On the 22d I proceeded towards Yenatævka. At a ſhort diſtance from Kopanofskoi the ſteppe riſes in hillocks, and is more of a ſandy than clayey nature; but the ſand under the ſurface is combined with clay. All the plants of this region are dwarfiſh, and have a withered appearance, as is commonly the caſe on a ſandy ſoil. The *Ornithogalum bulbiferum* grew as abundantly in the vallies as if it were ſown, and ſometimes had ſeven or eight filaments, and as many anthers. The white tulip ſtill preſented itſelf, though only ſingly. The willows and poplars had begun to bud in the vallies. In thoſe parts where the ſteppe begins to riſe in hillocks, and in the glens on the bank of the Volga, ſeveral bones of the Elephant have been diſcovered. I obtained a jaw-bone pretty much petrified, and, as it were, coated with ſmall gravel and muſcles.

In the environs of Yenatævka we again met with Kalmuks, who are fond of paſſing the winter here in numerous hordes, but who in the preſent year had been infected by the ſmall-pox, which was epidemic along the Volga, and obliged them to diſperſe; this is a diſeaſe as dreadful and deſtructive to them as the plague. According to the lateſt liſts which I received, the remains of this remarkable people, who ſince the introduction

riſen in rebellion, a ſmall corps of Ruſſian troops advancing againſt them, they ſaw themſelves all at once almoſt entirely ſurrounded by the high graſs on fire. Such a cataſtrophe often occaſions great miſchief; the flames ſpread themſelves far and wide, put the dwellings of the inhabitants in imminent danger, conſume the corn on the ground, and even ſeize on the foreſts. Many prohibitions, under ſevere penalties, have accordingly been iſſued againſt this practice, but they ſeldom have any effect. All the ſteppes may be conſidered as a ſort of common land.—See Mr. Tooke's "*View of the Ruſſian Empire*," vol. i. p. 84.

of the provincial governments, and the diviſion of lands, are confined to a more limited ſituation, ſtill conſiſts of eight thouſand two hundred and twenty-nine *Kybitkes*, or family-tents. Notwithſtanding the ſeparation of a large horde of Derbetes who, diſcontented with their lot, after the extinction of the principal lineage of their hereditary princes, have withdrawn themſelves from this neighbourhood, and ſettled between the Don and the Yaik, where they have aſſociated with the Kozaks; the number of theſe amounts to four thouſand nine hundred Kybitkes, or hearths, on the ſteppe of the Volga. Of this number are reckoned:

Under the dominion of the Crown, the Torgotes of the tribe of Baga-Zookhor, formerly ſubject to Colonel Prince Dondukof - - -	3086
Under Prince Muku-Uken - - -	926
Under Zebek Ubaſha - - - -	996
Under Prince Tümmen, who now has the rank of Major - - - - - -	892
Under Sandſhi Ubaſha, and formerly ſubject to Prince Zandyk - - - -	1432
The vaſſals of the late Prince Zagan - -	79
Under Nocoin Köbenn and his brothers - -	40
Under Byteke - - - - -	21
Under Zagalai-Noyon - - - -	70
The vaſſals of the late Zendenn - - -	159
of Prince Dſhall - - -	92
of Soodſhi Noyon - - -	251
of Nima - - - -	15

The

The vaſſals of Ekrem	- - - -	9
of Zebek Noyon	- - -	152
of Shambai-Noyon	- - -	9

To this number may alſo be added about two hundred baptized, free, and civilized Kalmuks, who dwell in Aſtrakhan and its vicinity.

In my "Collections for the elucidation of the Hiſtory of "the Mongole Tribes," I have given ſuch circumſtantial details of their conſtitution, modes and viciſſitudes of life, religious ſuperſtition, and idolatry, that any farther account would be ſuperfluous. Frequent attempts have been made to induce them to form a ſettlement; but they are ſo much accuſtomed to uncontrolled and vagrant habits, that it was only from the extreme indigence of their fugitive brethren who have lately begun to emigrate to the province of Songary in the Chineſe dominions, that their preſent rulers have been able to compel this unſteady people to apply themſelves to agriculture and reſide in ſettled habitations. We truſt, the two plates repreſenting the national dreſs and felt hats of the Kalmuks will not be unacceptable to the reader. The fourth plate repreſents a Kalmuk of the lower claſs, and a prieſt of that nation, in their peculiar dreſſes. The fifth plate gives the portraits of a woman and girl of the ſame people. In both, the expreſſion of the features of a nation which is ſo well characteriſed, is perfectly accurate. In order to gratify phyſiognomiſts, I have added, by way of ſupplement, in the fourth vignette, the profiles of two girls, one of the real Mongole race, and the other of the Kalmuks, both of which are very exact delineations of theſe

two

two kindred nations. The profile of a youth of the Nagay tribe, in the ſame vignette, will ſhow how well the Mongolian form is ſtill preſerved, notwithſtanding the different mixtures with the Tartar race; a form which has been unchanged among the Nagays through the lapſe of many centuries. It farther proves how ſtrongly that nation impreſs their characteriſtic traits on the people with whom they are intermixed; for inſtance, on the Chineſe and the Ruſſians who live beyond the Baikal.

Beyond Yenatævka the ſteppe becomes more ſandy as it decreaſes, and at unequal diſtances diſplays banks of moving ſand, which become progreſſively more frequent. A quantity of decayed ſhells are everywhere found intermixed with this ſand, and ſome Caſpian muſcles in a calcined ſtate. The dry ſteppe is very hilly, though it does not riſe more than two or three fathoms above the level of the Volga. The low country abounds with graſs, is interſperſed with willows, and as it were ſown with tulips.

The *Iris pumila* appears here of two colours, being tinged with yellow and violet. Two beautiful ſpecies of *Aſtragalus* were now in bloom, on the ſand-banks, in conſiderable numbers: they are frequently met with, though not ſo early in the ſeaſon, through the whole extent of the Caſpian ſteppe. The ſpecies with the yellow flower has been improperly denominated, by Linnæus, *Aſtragalus trogoides*; the other, which I have formerly confounded with *Aſtragalus depreſſus*, is not contained among the Linnæan genera; it bears flowers of a white or reddiſh colour.

Near

Near *Koſſikovſkoi Stanitz*, which is twenty-five verſts diſtant, the beautiful *Ornithogalum reticulatum* * grows in abundance, as well as in all the country round Aſtrakhan. I am therefore aſtoniſhed that it ſhould have eſcaped the reſearches of Gmelin, who was, indeed, too much inclined to conſider many common plants as a new ſpecies, when he could not immediately claſſify them. The *Ornithogalum reticulatum* thrives beſt among the grey ſea wormwood, and the early ſedge of the marſhes. I obſerved here a ſmall variety of the *Ranunculus falcatus*, *Lithoſpermum arvenſe*, *Veronica verna*, *Iris pumila*, of different colours, and a ſmall ſpecies of the *Tulipa ſilveſtris* in bloſſom. The flowers of the *Aſtragalus alopecuroides*, and *Atraphaxis* were juſt beginning to open.

As the continued wind from the ſea cauſed the water of the Volga to ſwell ſo as to overflow part of the low ground, I was obliged to purſue my journey over difficult and fatiguing ſand-hills; in conſequence of which I did not arrive till late in the evening at Samyangorodok, where I ſtaid during the night.

The heights adjacent to this place are banks of ſand drifted over a ſtratum of clay, and on which the plants called by Linnæus *Pallaſſia Caſpica*, *Coriſpermum ſquarroſum*, *Hedyſarum Alhagi*, *Spartium aphyllum*, and others which grow on ſand, thrive in abundance. The firſt, as well as the *Axyris ceratoides*, and *Artemiſia fruteſcens*, put forth young ſhoots. The roots of the *Pallaſſia* lay like tape above the ſand, and were ſeveral fathoms in length. Farther on, the ſand, in conſequence of its lying nearer to the clayey ſtratum, became more conſolidated;

* PALLAS's *Travels*, Part iii. Supplement, page 727. Plate D. Fig. 2.

and

and there alſo, beſides the *Aſtragalus tragoides*, the *Iris juncifolia* * flouriſhed exuberantly.

We were obliged to ſuffer the inconvenience of the ſand till we reached Baranova Vataga; as we wiſhed to continue the reſt of our journey along the ſhore of the Volga to Lebäſhie, or the out-poſt of the ſwans, which is twenty-four verſts diſtant from Samyangorodok. We purſued our route the ſame day to Solänka, and ſlept in a place ſituated oppoſite Aſtrakhan.

Below Lebäſhie there are deep hillocks of quickſand, the baſes of which riſe but a little above the ſurface of the Volga. Between theſe we obſerved in different places a ſaline ſoil, covered with a white incruſtation of ſalt, about one-eighth of an inch thick. In the dells between the hillocks we obſerved the willow and the tamariſk, as well as the *Aſtragalus tragoides*, which blooms in all parts of this neighbourhood, and has long luxuriant flower-ſtalks, owing to the moiſtneſs of the ſoil.

The incruſtations above mentioned, firſt afforded by cryſtallization a beautiful Glauber's ſalt, with an alkaline baſis; and the mother lye contained a digeſtive ſalt, ſuperſaturated with alkali, which was not ſuſceptible of a cryſtalline form.

On the 25th I was ferried over the Solänka, as its bridge had been carried away by the flood; and thence I proceeded in a boat on the Volga to Aſtrakhan.

All that I have to ſay of that important place, the principal ſeat of our Aſiatic commerce, and the general magazine of fiſh for the whole Ruſſian empire in Europe, with my obſervations

* *Iris tenuifolia, varietas?* PALLAS's Travels, Part iii. Supplement, page 714. N. 66. Plate C. Fig. 2.

and

and remarks, I intend to publiſh at my return to that city, in the month of Auguſt. I now haſtened with Mr. Geiſsler to the ſteppe beyond the Volga, that I might obtain exact drawings of the rare vernal plants. I propoſed to give an account of the moſt remarkable plants I might obſerve during a journey peculiarly devoted to botany, and in which two young gentlemen, Mr. Dokuſhaëf, teacher of Natural Hiſtory in the Normal Academy at Aſtrakhan, and the ſtudent of pharmacy, Mr. Swenſon, both eager of inſtruction, voluntarily accompanied me.

My ſtay at Aſtrakhan was protracted by various circumſtances till the 5th of May. During that time I collected beautiful vernal plants, had drawings made of them, and proſecuted various uſeful inquiries. This day at noon I diſpatched my light equipage by water, and went myſelf in a ſmall boat, at three o'clock, up the Volga, with a fair ſouth-eaſt wind. I paſſed the convent of Bolda on the little river of that name, which forms an iſle near its ſource; and continued my route in ſight of the Kaſatſhei Bugor *.

Behind Aſtrakhan we paſſed the convent of Pokrofska, and proceeded with a fair wind up the Bolda. On leaving Tſherpakha, which belongs to Mr. Beketof, ſometimes with the aſſiſtance of oars, and ſometimes with ſails, we ſteered the greateſt part of the time towards the S. E. and E. S. E. through what are called the *Buſurmanka*. Theſe are canals, in ſome parts covered with ruſhes, and in others confined within dry banks:

* Bugor, in the Ruſſian language, properly ſignifies a hillock; but in the low regions round Aſtrakhan and the Caſpian Sea, this term is likewiſe applied to all dry iſlands, or barren tracts of land, which project above water.

they conducted us into the Rytſha, thence into the Kortubinſkoi Ilmen, and at length into the Buſan. Having croſſed this prodigious and extenſive branch of the Volga, which the riſing water had increaſed, we ſteered in a direct line to the city of *Kraſnoi Yar*, where we landed at eleven o'clock at night.

On the 6th of May it rained ſo hard, and the weather was ſo tempeſtuous, that we found it impoſſible to continue our voyage, and reach the oppoſite ſteppe. A ſhort interval of fair weather permitted us, with difficulty, to viſit the environs of the city, and inſpect the ſaltpetre beds, as well as the lixiviated nitrous hills, which run in an eaſtern direction, and are adorned on both ſides by the moſt beautiful orchards. This nitrous field appears to have been a cemetery of the ancient Tartars; an opinion which is corroborated by numerous fragments of bones and whole human ſkulls, mingled in every direction on this ſoil. *Sumerkent*, the antique Tartar town, which Rubruquis, or Ruyſbroek, the monk, in his forty-ninth chapter, ſtates to have been ſituated in an iſland at one of the mouths of the Volga, appears to have ſtood in the environs of modern Kraſnoi Yar; for ſoon after we find Aſtrakhan mentioned under the name of Citrakan, in the low country of the Volga.—Not only in the environs of Kraſnoi Yar, but alſo on the two iſles Kobylie and Vataſhnoi Bugor, ſituated in its vicinity, on the uninhabited places called Kraſnye Yari, or red banks, near Altſha, on Karaulnoi, Kirpiſhnoi, and Mayaſhnoi Bugor, traces of ſtone-buildings are frequently diſcovered; and large bricks are often dug up, of which the boors build their ſtoves. The whole Mayaſhnoi Bugor, which is ſeparated from Kraſnoi Yar by the

the Ogorodnoi Yerik, or, garden ditch, and from Kirpiſhnoi Bugor, or, brick iſle, by Kirpiſhnoi Yerik, or, brick ditch, is appropriated either to gardens or a cemetery, and is full of ancient Tartarian tombs. Other dry iſles adjacent, ſuch as Bugri Danilovye, Kobluiſkoi, Tſhertofskoi, Parſhikofskoi, Kandakofskoi, and Kobylinſkoi, though they have no remains of brick buildings, yet veſtiges of a former population are everywhere viſible.

The nitrous earth of this country is a reddiſh ſandy marl, or ſand mixed with clay, and interſperſed with pieces of bone. It would be neceſſary to mix dung or urine with it, in great quantities, to prepare a good compoſt for the production of ſaltpetre, in walls or beds which might afford a ſufficient ſupply for a ſmall ſaltpetre-work. At this ſeaſon there was but a very ſlight efflorescence on the lixiviated earth.—The only plants which thrive on theſe nitrous beds are the *Ceratocarpus*, *Ranunculus falcatus*, *Lepidium ruderale* and *perfoliatum*, *Scorzonera laciniata*, *Hyoſciamus niger*, *Secale proſtratum* and *villoſum* *, *Siſymbrium*, *Loeſelia*, and *Sophia*, *Aſperugo procumbens*, *Lycopſis veſicaria* and *Cynogloſſum*. Various ſpecies of *Salſolæ*, *Polycrema*, *Atriplices*, and the numerous *Meſſerſchmidia*, put forth their buds.

Kraſnoi Yar is built on the bank of the Buſan, in an iſland formed by the confluence of that river with the Akhtouba and the Algara, another branch of the Volga. It is interſected by ſeveral ſmall canals; for inſtance, thoſe of Mayaſhnoi and Ogorodnoi Yerik. Part of this iſle is inundated at high water; and then the ſtreets of even the higher parts of the town are over-

* *Secale proſtratum.* PALLAS's Travels, Part i. Supplement, page 485. N. 99. Triticum pumilum, Lin. Sup. Plant, p. 115.

ſlowed. At ſuch times travellers can proceed in boats directly to Aſtrakhan; and by this way the diſtance is only thirty verſts, and ſometimes even leſs. On the contrary, when the waters are low, and eſpecially when the wind blows towards the ſea, and propels them outwards, travellers are obliged to make a conſiderable circuit up the Akhtouba, by which the voyage is protracted to ſeventy verſts. It is the ſame in winter, when the ice is broken by the ſea-winds, and thrown up on the other ſide of the iſles: beſides theſe inconveniences, a ſimilar circumſtance happens when the water from the ſea inundates them, and thus renders the direct road impaſſable.

This city is of an oblong form, and interſected by a principal ſtreet: it contains about three hundred houſes, a ſtone-church, ſufficiently large for the population of the place, and one of wood. The garriſon conſiſts of one hundred infantry, whoſe commander ranks as a ſtaff-officer, and one hundred Kozaks. The inhabitants are either merchants or fiſhermen: conſequently there is a great want of mechanics. The wooden fortifications of this place are totally decayed, except two turrets; and the means of defence at preſent conſiſt of chevaux de friſe and two open batteries. The gardens of the inhabitants are particularly celebrated for delicious autumnal pears, called *Duli*, and for their apples, among which are a remarkably large ſpecies, and another which they call *Mamutofskye yabloki*, or the Boukharian ſort. The gardens likewiſe produce a very large ſpecies of white onion, which is much eſteemed. Theſe fruits, and fiſh, are the only traffic of the inhabitants, who convey them in boats to the market of Aſtrakhan, where they are

advan-

advantageouſly ſold, ſo as to produce annually from ſix to eight thouſand rubles.

Kraſnoi Yar was built in the reign of the Tzar ALEXI MICHAILOVITSH, and ſeems to have been intended to check the exceſſes of the hordes of pillaging Kozaks, who make inroads from the Buſan to the Caſpian Sea; while it alſo ſerves as a barrier to Aſtrakhan, againſt the Kalmuks, eſpecially in winter, when they may proceed over the ice from every quarter towards that city. Even at the preſent day, as the Kirghis have, ſince the year 1774, obtained permiſſion to winter annually in the ſteppe on this ſide of the river Ural, as far as the Volga, it would be adviſable to eſtabliſh ſome fortifications for the ſecurity of this place. The inhabitants, however, ſuppoſe themſelves perfectly ſafe, and have built a ſmall ſuburb even on Mayaſhnoi Bugor: the only acceſs to which is by narrow footpaths of planks, which have from neceſſity been ſubſtituted for bridges.

On the 7th of May the weather was fine, with a mild and conſtant breeze from the South-Weſt. On the morning of that day we ſailed a ſmall way up the Buſan, and entered the Akhtouba, which flows into it. We then proceeded up that river, and paſſed the mouth of the Algara to Kraſennaya Prorva, a narrow canal, the dry banks of which were covered with beautiful willows and poplars. From this place we continued our courſe to the vaſt lake of Tſhernoi Ilmeen, that extends farther than the eye can reach, though its depth in no part exceeds three ells. We ſailed over this lake principally N. E. and E. till we entered the Karduvanka, and thence paſſed into the Kigatſh, which flows along the more elevated oppoſite ſteppe, and forms the eaſterly arm of the Volga. When we landed

landed near Studentzova Vataga, a rendezvous of fiſhermen on an iſle of the Kigatſh, we found the horſes ordered for us, and an eſcort of Kozaks appointed to conduct us to the ſteppe, near the advanced poſt of Kapitanſkoi, a place belonging to the cordon lately eſtabliſhed.

This military cordon has been organized to act againſt the Kirghis. Hordes of thoſe banditti in winter prowl as far as the Volga, along the ſhores of the Caſpian Sea, and to the ſandy deſert of Naryn, where they commit numerous petty depredations. The Kozaks alſo patrol for the ſecurity of the fiſheries, and ſolitary farms along the ſhore, or on the iſles of the river: they are ſtrongly reinforced in winter by Kalmuks, when the Kirghis are approaching, or retiring. The poſts of theſe troops, which are intended to furniſh continual patrols, are, computing from the ſea, eſtabliſhed in the following places:

Near Kulpinſkoe, a fiſhery ſituated towards Guryefgorodok.

Near Yerſhova Vataga, ten verſts from the latter place.

Near the fiſhery, and in the environs of Kaſſalgan, thirty-five verſts farther, and about half-way from Guryef, which is computed to be five hundred verſts diſtant from Kraſnoi Yar.

Near the point of land called Beluſhinſkaya Koſſa, nineteen verſts and a half.

Near a nameleſs gulph of the Sea, ſeventeen verſts from the point of Beluga, or the great ſturgeon.

Near the farm Bakaef, ſeventeen verſts.

Near the ſmall lake Erke-Aman, eighteen verſts.

Near the fiſhery of Telepnef, the merchant, nine verſts.

Near

Near Severnoi, eleven verſts and a half.

Near Budak, or Baideë, fourteen verſts. Here the line leaves the ſea-coaſt, and extends itſelf towards the ſource of the Kigat, and the Akhtouba.

Near the ſalt lakes Ledänetzkye, ſixteen verſts.

At the Kigat, or the extreme collateral branch of the Volga, nineteen verſts and a half.

Near Temähn-Noor, or lake of the camels, three verſts and a half.

At Bereket, a canal adjoining the Akhtouba, where the cordon joins Kraſnoi Yar, ſixteen verſts.

Farther, above this place, are the following ſtations:

Near the Tartar village Saitovka, fourteen verſts from the poſt of Bereket.

Near Neverova Vataga, five verſts.

Near Byeloi Metſhet, a Tartarian houſe of prayer, ten verſts.

Near Dolotchan, thirteen verſts and a half.

Near the Tartarian houſe of prayer, Urak-Mullah, fourteen verſts and a half.

Near the Aſhuluk, a collateral branch of the Akhtouba, thirteen verſts and a half.

Near Selitränoigorodok, fourteen verſts.

On the height of Kharabali, eighteen verſts.

Near Skvortzof Yaar, or bank of the ſtarlings, ten verſts.

Near the Tſhapurie Oſero, or lake of the kite, twelve verſts.

Near the water Saſſikol, ſeven verſts and a half.

Near Manchalinſkoi Yaar, ten verſts.

Near the Akhtouba, eleven verſts and a half.

Near

Near Solotukhin Yaar, nine verſts.
Near Sikerta, or properly Settertä, eighteen verſts.
On the Bulgumſkoi Bugor, eleven verſts.
Near Yablonnoi Yaar, or bank of apples, fourteen verſts.
Near the bank Silgan, thirteen verſts and a half.
Near the village Volodimerovka, in a direct line oppoſite Tſhernoiyar, eleven verſts.
In the Kurkina Balka, thirteen verſts.
Near an angle of the Akhtouba, ſixteen verſts.
Near Neſnaemka, eleven verſts.
Near the rivulet of Zarevka, eleven verſts.

From this place the cordon extends to the government of Saratof, thence acroſs the ſteppe to the ſmall lake of Altan, or Elton, along the road by which ſalt is tranſported to Targun, and N. E. to the ſmall fortreſs of Uſenkaya. This fort has been built ſince the year 1788, according to a regular plan, with parapets and baſtions, on the right bank of the great river Uſeen, below Solanka, the third brook which empties itſelf into that river. The place, with the exception of the garriſon, contains only about one hundred inhabitants.

At each of theſe poſts eight or ten Kozaks, with a Desätrick, are ſtationed; and reinforced in winter with ten or twelve Kalmuks. At the greateſt diſtances, for inſtance, towards the ſea, near Kraſnoi Yar, Selitrenoigorodok, near the Akhtouba, above Mankhali, and near Kurkina Balka, there is alſo a corps de reſerve of twenty or thirty Kozaks, and ſixty Kalmuks, commanded by a Kozak officer, and ready to aſſiſt the centinels on any emergency. At Volodimerovka there are twenty infantry

infantry ſtationed, with a ſmall train of artillery; and there are an officer and forty imperial dragoons of Aſtrakhan ſtationed at each of the poſts of Kraſnoi Yar, Bereket, and Saitovka.

Karduanſkoi Ilmen, where we landed, and near which we reſted this night, is a bay or lake into which the Kigatſh flows, and whence it again iſſues. A guard is ſtationed on the ſhore of this bay, on account of the ſalt lake in the ſteppe called *Karr-Duan*, a compound word of the Tartars from *Karr*, which ſignifies ſnow, and *Duan*, thaw; and the place has received this appellation becauſe the ſnow ſoon diſſolves on the high ſandy ſteppe.

The ſalt lake of this place does not contain a pure ſea-ſalt, but depoſits a ſediment, which conſiſts of an intermixture of common and Epſom ſalt. It is made by a contract with the apothecaries of Aſtrakhan, who prepare from it, for all the Ruſſian druggiſts' ſhops, what is called *Sal Aſtrakhananſe*, and magneſia. This lake is above half a verſt diſtant, E.S.E. from the bank of the Volga. It lies beyond the elevation of a flat ſteppe, and appears, as it were, incloſed in a baſon formed by the gradual declivity of the ſurrounding parts of the deſert. This very ſmooth and ſhallow lake is not more than an arſhine deep, and the ſteppe riſes about a fathom higher than its ſurface. It is oblong, and extends in a ſerpentine form, being about four hundred fathoms in length from S. E. to N. W.; but ſcarcely ſixty fathoms broad. From the S. E. border of this lake, a narrow valley, ſituated ſomewhat higher, extends in a weſtern direction for twenty-five fathoms, when it grows wider, and

declines into a ſaline marſh, about ſeventy fathoms from E. to W.; and with certain winds it is inundated with the ſalt water of the lake. This ſaline marſh, as well as that of the lake, is like the black, hepatic, and fetid mire uſually found in all ſalt pools. In dry ſummer weather there is an incruſtation of ſalt and ſand formed of different degrees of thickneſs, the upper part of which is ſea-ſalt, and under it a kind of Epſom-ſalt; both are imperfectly cryſtallized. Perhaps this phenomenon may be attributed to the premature precipitation of the Epſom-ſalt, which more readily aſſumes the cryſtalline form. In conſequence of the conſiderable quantity of the late rains, the ſalt which had been nearly cryſtallized was for the greateſt part again diſſolved. At the bottom of the lake, I found a ſtratum of looſe marine ſalt in irregular angles, and eaſily ſoluble; which in a manner conſtituted one half of the lixivium.

The marine plants which I found upon the edge of this lake, were the *Nitraria* in ſpreading buſhes, the *Salicornia ſtrobilacea* and *foliata* in an erect ſtate, and the *Frankenia hirſuta*. On the higher parts of the ſteppe I obſerved the *Aſtragalus tragoides* and *alopecuroides*, *Ephedra monoſtachya*, and *Axyris ceratoides* in large buſhes, the *Hypecoum pendulum*, the *Cheiranthus nitrarius* *, and the *Ranunculus falcatus*.

On the 8th of May, in the morning, I made an excurſion on horſeback farther along the *Ledänetzkoi Yerik*, or ice-ditch, a ſpurious branch of the river which runs from the Kigatſh

* Cheiranthus, an littoreus? PALLAS's Travels, Part ii. Supplement, p. 741. N. 115. Plate k. Fig. 2.

into

into the ſteppe. Near a place called Ledänetzkoi Priſtan, where the boats are loaded with ſalt, I found a ſtation of the forementioned cordon, and a guard for the ſalt-works. About one hundred fathoms farther into the ſteppe, I obſerved, in low ground, a large, oval, ſaline lake, about two hundred fathoms in diameter. In this lake the ſalt had begun to form a looſe, granulated incruſtation, which the rain had partly diſſolved.

From Ledänetzkoi Oſero, or the ice lake, from which the abovementioned water takes its name, we continued our journey on horſeback about three verſts to the N. W.; and after having paſſed a ſpurious branch of black, muddy, and fetid water, in ſtagnating pools, we arrived at the *Byelye Oſera*, or white ſalt lakes. Theſe two lakes lie near each other, are leſs than a verſt in diameter, and are ſeparated from the fetid water only by a gentle elevation. The lake towards the South is of an oval form, and about one hundred and ſixty fathoms long; the other, which is nearly one hundred and forty fathoms diſtant from the former, is, as it were, compoſed of two; a ſmall oviform one, eighty fathoms in length, and a larger one, rather winding in a direction from N. W. to S. E. and three hundred fathoms long. They are connected by a narrow and marſhy ſoil, and even at this early ſeaſon depoſited a common ſalt. The marine plants here are ſimilar to thoſe laſt mentioned. We rode along the before-deſcribed arm of ſtagnant water, and after paſſing near Karr Duan, which we had viſited the preceding day, diſtant about four verſts from the white lakes, we returned to our quarters.

There are three ſmall ſalt lakes on a flat iſle, incloſed between the arm of water called Karr Duanſkoi and the great Algara,

and interſected by another branch of water named Yerik Mukhomar, but which I could not viſit for want of a boat. Two other lakes, called Teplinſkye Oſera, lie contiguous to each other, above Mukhomar; and a third lake is ſituated below that branch. In conſequence of the produce of all theſe ſaline lakes, magazines for ſalt have been erected on the high ground of the ſmall Kobylin Bugor, between the great and the little Algara.

I will not decide here, whether theſe lakes are ſupplied by ſalt ſprings, or are only places which remained filled with ſalt-water after the ſea had retreated. Their ſituation, however, in extenſive flat grounds, capable of containing much ſalt-water, which afterwards collected in the deepeſt cavities, renders the latter ſuppoſition probable. On the other hand, the different qualities of the ſalt of the neighbouring lakes, the remarkable difference of their ſaline impregnation, and the various ſprings of ſaline or brackiſh water, which we found on digging wells in the Caſpian ſteppe, tend to corroborate the former conjecture. In either caſe, the ſalt which is diſcovered throughout the ſteppe, is derived from the ſea that formerly covered it, and the veſtiges of which are ſtill perceptible.

On my return found that the Tartar guide, who was to conduct me through the dry ſteppe, had arrived. Meanwhile I had been informed by ſome old Kalmuks, that we ſhould find in this country a remarkable mountainous tract, called Arſagar, at a conſiderable diſtance from the Volga; and that it contained ſeveral ſpecies of gypſum, and a peculiar rock-ſalt called *Moril Dabaſſum*: independent of my botanical reſearches, in a rocky country and ſouthern climate, where I might expect to find many

many rare plants, my intention was likewiſe to diſcover this ſalt.

The country of Arſagar was familiar to my guide, who formerly had frequent intercourſe with the Kalmuks, and at preſent with the Kirghis: he conſequently knew every noted place on the ſteppe. But inſtigated by the lieutenant who commanded my eſcort of Kozaks, and who was unwilling to accompany me on ſuch a dangerous journey through the deſert, he would not tell me the truth. After many unavailing ſolicitations, I was at length obliged to brave the obſtinacy of theſe people; and, with a compaſs in my hand, I undertook my journey on the ſteppe againſt their will. After the vague deſcription which had been given me of the environs of Arſagar, I demanded a deciſive anſwer, whether they would endure thirſt as well as myſelf, or conduct me by the right way from ſpring to ſpring.

I then ordered our water veſſels to be filled, and after dinner began my journey. We firſt paſſed two oblong lakes of pure water, in baſons formed by Nature, and then proceeded a ſhort way up the Kigatſh. We afterwards paſſed the ſaline lake Tzatzek-Nor, and obſerved on its ſhore a houſe of worſhip conſtructed of wicker-work, and a cemetery of the Kundurian Tartars, on an eminence. We then came to a ſmall bay formed by the Kigatſh, and called Kigatzkoë Ilmen; and thence travelled to another detached bay, called Temahn Nor, or lake of the camels; where a party of troops is commonly ſtationed. After the horſes had been watered, we travelled directly N. E. into the ſteppe, which gradually riſes, and ſoon becomes more ſandy. Proceeding four or five verſts farther, we arrived at a long,

a long, dry, ſalt-marſh, which extends in a N. E. direction: an old Kalmuk-road runs along this marſh, and joins the patrol road of Temälin-norſkoi Karaul. In the neighbouring ſand-hills, deep wells had been ſunk, and we obſerved that the ſand thrown up was intermingled with ſhells.

After a march of an hour and a quarter, we obſerved on our right, two ſmall oblong ſalt lakes, which were ſeparated by an eminence. Theſe lakes at this time contained a ſmall portion of marine ſalt, yet in ſpring their waters are not unfit for the uſe of cattle. They reſembled the flat baſons of the higher ſteppe; and nearly all the ſalt-pits or ſaline lakes of this low country were of a ſimilar appearance. A little farther on we found another ſalt-pit, in a direction from Eaſt to Weſt. Twenty-four computed verſts from the Volga I pitched my tent for the night, on a ſandy ſoil, near two old ditches; and immediately ordered an attempt to be made to obtain water. After ſinking a well to the depth of a fathom and a half, we diſcovered wet ſand, mixed with particles of ſelenite, in the form of lentils; ſoon after we found water, of a brackiſh, bitter taſte, which fruſtrated our attempt. The horſes were obliged to be ſatisfied with the dew of the night, as their only drink; and, at the dawn of day, I ordered a truſty ſoldier on horſeback, accompanied by a Kozak, and my guide, to ſet out for the firſt ſandy hillocks of *Saltan Murat;* with a view to ſeek for freſh water, and to purify the wells, which I was certain could not be far diſtant.

On the 9th of May we continued without water till one o'clock in the afternoon, when our meſſengers returned and brought us good news, to the great diſappointment of the commandant

mandant of my eſcort. During theſe tranſactions, the eſcort was relieved by another detachment of Kozaks, commanded by a lieutenant who belonged to the garriſon of Saritovka, and I then found myſelf diſengaged from an obſtinate and uſeleſs conductor. My new guide, Mr. Golubief, was a reaſonable, modeſt man, and a lover of order; he behaved with the greateſt politeneſs and attention during the remainder of my journey over this inhoſpitable region, through which he had himſelf many times travelled. When we were informed that good ſprings had been diſcovered at Saltan Murat, we travelled expeditiouſly the twenty-eight verſts to that place, where we found the water already purified. The ſteppe continued uneven, and contained dry, circular ſalt-pits, till we arrived at a lower plain, richly covered with graſs, interſected by pits, and diverſified with ſand-banks, where, properly ſpeaking, the country of Saltan Murat begins.

In the courſe of my travels I have met with few countries of ſo uniform an appearance as the ſteppe over which I paſſed in theſe low regions of the Volga, towards the Eaſt and Weſt. It was almoſt deſtitute of vegetable productions, except a few peculiar and rare plants, of which a particular account ſhall be given. On all ſandy parts of the ſteppe, the plants are different from thoſe which grow on a clayey ſoil, or on dry and ſaline plains; and the latter are the moſt naked and wretched ſpots in the whole empire.

The ſandy and more verdant part of the ſteppe produced abundantly the *Stipa pennata*, or feathergraſs, which the horſes ate with avidity, and other tufted graſſes, ſuch as the *Feſtuca ovina*, *Bromus criſtatus*, *Triticum junceum*, *Poa vivipara*, *criſtata*, *Aira*

Aira caryophyllea, and the like. Beſides theſe we frequently met with the *Euphorbia Eſula*; and in ſome places the *Achillea tomentoſa*, *Antirrhinum fragrans*, *Cheiranthus montanus*; here and there the *Carduus cyanoides monoclonos*, *Scorzonera eriopſperma**, *Elymus arenarius*, *Aſtragalus tragoides*, *tenuifolius*, and a diminutive variety of the *Senecio Jacobaea*, which bloſſomed cloſe to the ground. In ſome detached places the *Aſtragalus alopecuroides*, *Onoſma echioides*, *Tragopogon orientale* and *crocifolium*, flouriſhed; and where the concealed ſaline ſprings moiſtened the ſand, we obſerved the *Salſola proſtrata*, together with the *Artemiſia maritima*, and *auſtriaca*.

To the plants above-mentioned may be added, thoſe which appear in ſummer, ſuch as the *Coriſpermum hyſſopifolium* and *ſquarroſum*, *Tribulus terreſtris*, and *Salſola kali*. On the other ſide of the hillocks of drift ſand, and on the argillaceous ſteppe, I found, though thinly ſcattered, the plants peculiar to ſuch tracts, which I ſhall in future mention more particularly. Of the animal kingdom, I obſerved, in ſome places on this ſteppe, the *Ardea virgo*, the *Otis Tarda* and *Tetrax*, *Alanda nigra*, *Calandra arvenſis*, and *criſtata*, a few mountain mice, and the *Mus Jaculus*; but I ſaw in greater numbers the *Lacerta velox*, and the courageous *Coluber Jaculator*, or, as it is called by the Ruſſians, the *Sheltopuſik*. This reptile, which is not venemous, is often ſix feet long; it moves about with an erect head and breaſt, and when purſued defends itſelf by darting againſt the horſe and his rider. There are likewiſe two other ſpecies of reptiles, the *Berus*, and *Halys*, both of a poiſonous nature.

* Pallas's Travels, Part i. Supplement, p. 457. N. 12.

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The ſprings beſide Saltan Murat, where we paſſed the night, had been found in the cavity of a ſand-bank. My people diſcovered two other ſprings, at the depth of four arſhines, whence excellent water flowed in abundance; ſo that being favoured with a gentle eaſtern breeze, which had prevailed for two days, and uſhered in mild ſpring weather, we paſſed a very agreeable night here, and were entertained by the notes of the lark. On the ſandy hillocks which produced the reed, and buſhy *Artemiſia*, I obſerved the biting *Lacerta myſtacea* *, and a pretty little lizard, ſomewhat ſimilar to the forementioned animal, but without whiſkers, and which, when alarmed, rolls its tail upon its back. I likewiſe ſaw various and numerous inſects already deſcribed.

On the 10th of May, I reſolved to leave the greateſt part of my eſcort near theſe excellent ſprings, and proceed farther into the ſteppe, accompanied by my deſigner, M. Geiſsler, the ſtudent of Pharmacy, my guide, and two Kozaks; in order that, if we ſhould happen to be diſtreſſed for water, we might be able to ſend for a new ſupply.

My guide continued to advance towards the Eaſt, in a direct line, to which theſe people are ſo well accuſtomed. We obſerved in different places ſome ſmall ſalt-pits, and ſeveral pools, partly filled with driſted ſand and overgrown, on a hilly and verdant ſteppe, interſperſed with a variety of ſand-banks, and productive of herbs, among which were, a little wormwood, and ſome yellow milfoil. After having travelled about ſeven verſts, the ſteppe became level, and we found on its ſandy ſoil ſeveral large tufts

* Pallas's Travels, Part iii. Supplement, page 702. N. 36. Plate 5. Fig. 1.

of the *Iris juncifolia* in bloſſom. Six or ſeven verſts farther, the ſteppe again has a wave-like ſurface, with ſeveral dry ſalt-pits, and one containing ſalt water. On the right, we ſaw at a diſtance ſome banks of ſand, near one of which we ſtopped to dine, and obſerved the Torloc, or *Pallaſſia*, growing in ſingle plants.

Behind theſe ſandy hillocks we paſſed cloſe by ſeveral ſalt-pools about half dry, the ſecond of which was the largeſt, and more impregnated with Epſom ſalt than the reſt; the fourth lay directly in our road; and we again noticed ſand-banks at a diſtance. After travelling three verſts and a half farther, we perceived ſeveral ſmall ſalt-pits, in the form of a baſon, and one in the form of a horſe-ſhoe, about twelve verſts from the place where we had ſtopped to refreſh ourſelves and feed our horſes.

After travelling an hour, or ſix verſts farther, we arrived at ſome hillocks of a ſandy and firm clay, which my guide called *Saaſſik-Shoogot*. The plants growing here indicated the dry, ſterile, and argillaceous ſoil on which they commonly thrive. The *Anabaſis aphylla*, in particular, was very ſmall and creeping; the others, as the *Artemiſia contra*, and *maritima*, and the *Ephedra*, were abundant and flouriſhing. Beſides theſe we ſaw that enormous large plant the rhubarb * of the ſteppe, or *Rheum Caſpium*, which alſo embelliſhes this barren region. The mother-root of this plant was in many places as thick as a man's arm, and each of the three leaves which grew cloſe to

* PALLAS's Travels, Part i. Supplement, pp. 380, 381. "I am ſtill more decided in opinion that our rhapontic, or rhubarb of the ſteppe, is no other than the *Rheum Ribes*, collected by RAUWOLF, on Mount Lebanon."

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the ground, was frequently upwards of an arſhine and three quarters in diameter, and four arſhines or upwards in circumference. Among theſe inflated and much wrinkled leaves, which are ſimilar to thoſe of the white curled Savoy cabbage, the *Coluber Berus* was frequently concealed; we alſo found here the caterpillar *Phalæna aulica* in great numbers. The *Ulva Noſtoc*, and the *Lichen terreſtris* were numerous in theſe regions.

We left theſe gently-riſing hillocks on our right. On the ſummit of the firſt, there is a ſepulchral mount, overgrown with ſeveral old and large plants of Rhubarb, and ſurrounded by a trench. The hillocks are environed by ſalt-pits, but beyond them the ſandy ſteppe is interſperſed with a few dwarf ſhrubs of Tamariſk, with very ſhort catkins; and the *Ephedra monoſtachya*, which was not yet full-blown, grew here in great abundance. About ten verſts from the abovementioned hillocks we arrived at a ſand-bank, from which iſſued ſeveral very good ſprings that had probably been purified or cleanſed by the Kirghis, at their departure from this country, in the preſent year. We reſolved to paſs the night at this place, where the Torloc, or *Pallaſſia*, was very common. The cavities between theſe hillocks ſerved in winter as places of ſhelter for the camels and ſheep, and were nearly filled with the dung of thoſe animals. On the paſture ground we found in abundance the *Scarabæus Ammon* *. Towards the N. E., but at a great diſtance, we deſcried ſeveral large ſand-hills, which probably belong to the chain of Naryn, or Rynpeſki. Three other

* Pallas's Travels, Part i. Supplement, No. 22. Part iii. Supplement, page 707. No. 50. Nov. Spec. Inſector. Tab. A. Fig. 8. AB.

hillocks, which my guide called *Bugly Shoogot*, were ſituated to the S. S. E.; and thoſe which produce the rhubarb aforementioned, were to the S. S. W.

On the 11th of May, in the morning, we ſet out with a mild Eaſt wind; but our guide perceiving that we travelled too far towards the Eaſt, we changed our route, and proceeded more to the N. W. The ſteppe became progreſſively more mountainous, and at different places we obſerved ſalt-pits unconnected with each other. The ſurface of the ſoil was covered with a variety of graſſes: the country in general appeared to riſe, and preſented an unintereſting uniformity of ſurface. At the diſtance of twenty-four verſts the ſteppe became ſtill more hilly, and had numerous deep pits, like covered wells, but too large to be conſidered as ſuch. The Conſiſtory Counſellor SILBERSCHLAG would probably have conjectured theſe pits to be the craters of extinguiſhed volcanos; but I believe them to be cavities where the ſurface of the earth has given way, in conſequence of ſubterraneous ſtreams of ſprings having waſhed away the ſalt, or gypſum. Perhaps this country would deſerve to be ſearched for rock-ſalt; though I had neither miners nor inſtruments for that purpoſe. We travelled ten verſts farther through this riſing, uneven country, when we ſuddenly came in ſight of a vaſt and barren plain, and at the diſtance of about a verſt and a half we obſerved ſeveral white hillocks of gypſum.

The ſoil of the tract over which we travelled in a ſouthern direction to theſe hillocks, was unlike that which we formerly met with; being a mixture of marly gypſum and white clay, which produced ſeveral rare plants of a different ſpecies

ſpecies from any I had before obſerved in the courſe of my journey.

Although the atmoſphere was cooled and agitated by the wind, we felt an inſupportable heat on approaching the hillocks of gypſum; a remark which I had before made in all my botanical excurſions to theſe places, even when there was but little ſunſhine. The refraction of the ſolar rays from a white ſoil, and the numerous hollow and ſpongy ſurfaces which concentrate and increaſe the heat, and with which this country abounds, appear to be the cauſe of this phenomenon.

On my arrival, my firſt care was to procure water, which is uncommonly ſcarce in this ſelenitic, and, in many reſpects, remarkable country. I diſpatched our guide, together with the Kozaks, to a ſandy country, at a ſhort diſtance weſtward, known to the Kalmuks by the name of *Khonggor*, in order to ſearch for and purify ſprings. As I alſo foreſaw that I ſhould be employed for ſeveral days in attentively obſerving theſe regions, and the plants they produce, I ordered my guide, after he had diſcovered the ſprings, to take the direct road to our people whom we had left near Saltan Murat, and conduct them to us.—Both objects were accompliſhed agreeably to my wiſhes.

After a fatiguing day, which, notwithſtanding the heat, I employed in ſurveying the ſelenitic hillocks, without reſting a moment, and being encouraged by the diſcovery of new and beautiful plants, I pitched my tent for the night, near the purified ſprings about five verſts weſtward of thoſe hillocks. In the courſe of the evening the wind changed to the N. W. and brought on a little rain. On the 12th the ſky cleared up, and

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we had ſome ſunſhine; the wind, however, ſhifted to the N. E. On the 13th, in the morning, there was more rain, and a cloudy atmoſphere. In the afternoon of the ſame day our people, whom we had left at the ſprings of Khonggor, arrived; and I employed this and the following day in collecting plants, examining all the hillocks of gypſum and ſalt-pits in the vicinity of this place.

Arſagar, or, as the Tartars call it, *Ak-kala*, or the white city, ſtands on a gently-ſloping height, which riſes gradually for ſeveral verſts; it is about eight verſts in circumference, and nearly oval. The declivity of this elevation is a ſandy ſteppe, covered with verdure, except on its northern ſide, where the ſoil is more ſaline and argillaceous. When we approached theſe hillocks of gypſum, which did not ſtrike the eye till we came cloſe to them, becauſe of their extreme ſteepneſs; as well as the inner ſurface of their baſis being arched, we obſerved ſeveral ſinkings of the earth, and pits which uſually preſented rocks of gypſum, and ſometimes gulphs and clefts. In every direction we remarked ſpots which produced ſcarcely any plant but the variegated Lichen; and the ſoil of theſe ſpots conſiſted of a hollow-ſounding gypſum. Even the baſe, around which cliffs of this foſſil were ſcattered on the ſouthern ſide, generally preſented a clayey ſurface, mixed with gypſum, and overgrown with moſs. On the northern and inner parts between the hillocks, the ſoil is ſandy, and produces good graſs. The ſouthern baſe beforementioned has ſeveral very conſiderable cavities, ſome of which are dreadful perpendicular gulphs, and others run obliquely: in the latter a ſolid alabaſter

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is occaſionally found. This oval and ſomewhat obtuſe ſummit of the eminence, which is ſurrounded by about fifty cliffs of gypſum of different ſizes, is five or ſix verſts in diameter, and runs in a longitudinal direction from North to South. The middle of this eminence is overgrown with the *Stipa juncea*, and the *Axyris ceratoides* with a high ſtem; and I alſo remarked, at different intervals, ſeveral ſinkings of the earth, one of which appeared to have lately taken place, and exhibited a thick ſtratum of ſand, around the edge of the gulph.

From the ſummit of theſe rocks of gypſum, at the greateſt extremity of North and Eaſt, I perceived that the open and level ſurface extended towards the E. N. E. and S. E. From the W. N. W. to the N. E., at the diſtance of ſeveral verſts, as we proceeded by a gradual deſcent over the dry ſteppe, we obſerved extenſive ſaline tracts of various forms, overſpread with the uſual marine plants, among which the *Statice ſuffruticoſa* was the moſt numerous. On this ſteppe we again remarked many ſinkings of the earth, one of which preſented a ſolid alabaſter. At a diſtance of about five verſts on the weſtern ſide, we arrived at the ſand-hills of Khonggor, where we found good paſturage, and wells in the circular cavity of a ſand-bank. In the ſubſequent autumn, I ſent Mr. DOKUTSHAEF, the maſter of the ſchool at Aſtrakhan, to this country to collect the ſeeds of rare plants. He diſcovered farther northward a diſtrict of a ſimilar ſoil, and ſome ſinkings of the earth, one of which formed a cavern. About twelve verſts from Khonggor on the northern ſide, he found in a country of a firm clayey ſoil, a deep and abundant ſpring, which was ſurrounded with wicker-work, and provided with a trough of

gypſum.

gypſum. He alſo obſerved a great diverſity of ſloping dells, in which there appeared ſeveral ſpecies of gypſum and ſome alabaſter; whence it clearly appears that this tract extends as far as the rock-ſalt of Tſhaptſhatſhi.

Among the ſelenitic hillocks of Arſagar, I met with ſome of a larger, more elevated, and partly oblong form, which are a different kind of mountain. One of theſe is ſituated N. E. at the extremity of the whole ridge, and the other at the W. N. W. The firſt is the higheſt and moſt conſiderable, being nearly two hundred fathoms in length, and rather ſteep. It has on its ſummit two large and two ſmall knolls, the latter of which lie between the former, and reſemble the ſepulchral hillocks. This ridge extends from N. N. W. to E. S. E. and the knolls are in the ſame direction. The figure of the mountain, independent of the hillocks on its top, is an oval ſpheroid, which reſts on another oblong, though more even baſe. This extenſive baſe, and the mountain itſelf, as far as the higheſt eaſtern knoll, are covered with ſmall, black and white, lenticular pebbles, which muſt have aſſumed that form under water. On the ſummit of the ridge, I found the bivalve ſhells of the Caſpian Sea, in a good ſtate of preſervation; a proof that the waters of the Sea formerly covered the other ſelenitic rocks, as well as this eminence that riſes from twelve to thirteen fathoms above its baſe.

This ridge, on its ſouthern ſide, at about two-thirds of its height, but ſtill more diſtinctly towards the weſtern end, preſents ſtrata of a partly ſoft, grey ſand-ſtone, lying almoſt on its ſummit, and deviating only fifteen degrees from the perpendicular line towards the South. The ſide of the mountain, where

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this ſand-ſtone is viſible, becomes ſomewhat more ſteep, and is covered with graſs and herbage towards the bottom. The ſtone forms a ſtratum of an arſhine in thickneſs, about the middle of the mountain; on aſcending farther, it gradually decreaſes to only an inch and a half thick; and at the uppermoſt part it aſſumes a clayey appearance, and is not thicker than a common paſte-board. The thick ſtrata decline in a leſs perceptible degree, and ſtand almoſt rectangular. On its upper part, this mountain conſiſts of corroded gypſum, intermingled with ſelenetic plates, which will be deſcribed when we come to the ſmaller cliffs. On the northern ſide, lamellated gypſum firſt preſents itſelf on the ſurface. The weſtern ſide, where the ridge begins to decreaſe, exhibits thin beds of ſchiſtus ſimilar to thoſe before deſcribed: they take a ſerpentine direction down the ſide of the mountain, in ſtrata of ſeven arſhines thick towards the W. N. W. In ſome places they form cavities, or clefts, filled up with a dun hepatite of the ſpath kind, which effervеſces with acids, and emits during its ebullition a ſtrong ſcent, ſimilar to that of petroleum. This ſpathy hepatite is alſo found in conſiderable lumps, and ſometimes interſected with white veins, between the ſtrata of ſand-ſtone and thoſe of lamellated gypſum, on the upper part of the hillock towards the Eaſt.

From the ſummit of this ridge, we beheld the ſaline tract towards the North, and the whole group of ſelenetic hillocks and cliffs. Several elevations appeared in the north-eaſt region, on the extremity of the level ſteppe, and were ſeparated by an extenſive plain. Some heights intervened, partly in an eaſtern and partly in a direction towards the north-eaſt. The whole number amounted to nineteen hills, beſides twenty-nine of a

ſmaller ſize, which we obſerved between the S. E. and S. S. W. ſcattered at a conſiderable diſtance from each other.

On the top of this mountainous ridge, I found a low, variegated *daffodil*, with broad leaves, winged capſules, and a plurality of flowers, but which were faded: the bulbous roots of this plant, which I preſerved, did not produce flowers. This circumſtance I the more regretted, as I had never before met with it, and as it was indiſputably a non-deſcript.

Among the hillocks which lie to the S. E. of the former, there is one, on which the ſchiſtus appears in thin lamina, running in a ſouthern direction. Theſe lamina are covered with a corroſive effloreſcence conſiſting of a mixture of Epſom and common ſalt.

The moſt diſtant hillock towards the S. E. is a long ridge of gypſum, extending from North to South: it is high and rocky, ſo that from the S. E. to the North, excepting a few ſmall cliffs, nothing but an uniform dry ſteppe is perceptible.

Among the weſtern hillocks there is a ſecond ridge, higher and longer than that before deſcribed; it is about ten fathoms high, and conſiſts of a ſandy ſchiſtus, between layers of gypſum. The ſtrata, ſome of which were ſerpentine, ran in a N. W. and S. E. direction, terminating abruptly towards the Eaſt, in an almoſt rectangular form. Adjacent to this ſpot, there are two ſmall hillocks to the South and North; they both contain this ſchiſtus, which is alſo found, together with ſlates of gypſum, interſperſed with clay, on ſome of the middle ſouthern hillocks.

Another ſmaller ridge, at the diſtance of half a verſt weſtward, evidently contains alternate layers of clay and gypſum.

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But the oblong hillock, ſituated between the two before deſcribed, is more remarkable, as on its very ſummit the Kalmuks have ſunk two ſhafts to diſcover lamellated ſelenite, or *Glacies Mariæ*, with which they whiten ſheep-ſkins. On the top of this eminence, they have piled up ſeveral flat ſtones, intended as a mark to the miner. The mountain conſiſts of a ſoft gypſum, interſperſed with large plates of lamellated ſelenite, often ſeveral ſpans thick. Its ſide preſents irregular horizontal layers, which in ſome places are of a wavelike form, and in others there appear broken ſtrata of a ſolid, grey-edged alabaſter, in plates from half an inch or leſs, to two inches and upwards in thickneſs. The thicker layers are white, with parallel grey lines, ſtriped at unequal diſtances: the thinner ſtrata are grey, with dark parallel lines; but the former only are ſuſceptible of a poliſh like marble.

The greateſt part of theſe, particularly the ſouthern hillocks, are ſteep and rocky; though many are of an inconſiderable ſize. They generally conſiſt of a ſoft, white gypſum, which appears to have been corroded by ſea-water, as it is porous and imbibes water like a ſponge: this foſſil is not completely ſaturated, and in ſome places effervеſces with acids. Its cells and tubes extend, as is the caſe in *mäandrites* or *madreporites*, in a parallel line from the ſurface; or it reſembles a concretion of moſs and roots. This ſubſtance appears originally to have been gypſum intermingled with lime; the ſuperſaturated and ſoluble parts of which have been corroded by the ſea-water which formerly flowed over it, or perhaps even by the gradual action of rain-water; while the calcareous part remained inſoluble. This gypſum, which readily crumbles when expoſed to the air, is generally found on the level ſoil, particularly at the foot of

hillocks and on barren ſpots where the ſoil is a mixture of gypſum and marl, ſhaded by lichens of various colours. In ſeveral places fragments of ſelenite are diſcoverable, but they are ſeldom of conſiderable ſize, and never in regular cryſtals.

The face of this ſingular country is indeed not luxuriant, though it is very different from that of the adjacent ſteppes, and intereſting by the production of ſome peculiar and very ſcarce plants. The prevailing ſhrub here was the *Axyris ceratoides*, more common and larger than I had ever before ſeen, being often above a yard high, and growing in thick buſhes. The *Aſtragalus tenuifolius*, and *Salſola proſtrata* appeared likewiſe of a conſiderable height: the *Ephedra monoſtachya* grew to a pretty large ſize in the valleys, but was dwarfiſh and curled on the mountains. A particular kind of wormwood with fine leaves was very general. The *Ceratocarpus arenarius*, *Cheiranthus nitrarius*, and a remarkable genus of the *Arabis*, with white bloſſoms, perhaps the *Hiſpida* of Linnæus, which I formerly, but very ſeldom, obſerved growing ſingly, flouriſhed here, and the *Cheiranthus lacerifolius* * was one of the moſt common herbs that grew on theſe mountains of gypſum. It was ſometimes a ſemi-ſhrub, was now in full bloſſom, and after ſun-ſet exhaled a more agreeable odour than even the Engliſh gillyflower. Another rarity, the *Molluccella tuberoſa* † and perennial *Biſcutella* ‡ with red flowers, and thick eſculent roots of the turnip kind, were found together on moſſy places. I alſo ſaw a few of

* *Heſperis tatarica.* PALLAS's Travels, Part i. Supplement, page 497. Plate i. Fig. 1, 2.

† PALLAS's Travels, Part iii. Supplement, page 738. N. 101. Plate T.

‡ This plant, which is undoubtedly a new genus, has been by miſtake inſerted in the third part of my former Travels, under the name of *Biſcutella didyma.*

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the *Cachrys odontalgica*, and *Atraphaxis*. On the ſouthern ſides of all the ſelenetic mountains, and on the warmeſt and dryeſt ſoil, I obſerved a particular kind of *Aſtragalus*, which grew abundantly in perennial tufts, with nervated leaves, in which the leaflet on the top was generally wanting: and this plant affords an agreeable bitter. The delicate *Vella tenuiſſima* *, and two other new dwarf plants of the ſame claſs, grew contiguouſly. On the higheſt hillocks I ſaw the *Allium caſpicum* † of a very large ſize; and I found a new ſpecies of *Scorzonera*, the *Gypſophila paniculata*, *Adonis verna*, *Fumaria officinalis*, *Euphorbia Cypariſſias*, *Poa vivipara*, *Lithoſpermum*, *Lycopſis veſicaria*, *Sinapis rubella*, *Bromus tectorum*, *Tulipa ſylveſtris*, *Cucubalus viſcoſus*, *Onoſma orientalis*, and *Aſtragalus alopecuroides* and *phyſodes*. Theſe were the only plants then in bloſſom. In the latter part of ſummer, ſome ſpecies of *Salſolæ*, particularly the beautiful *Salſola oppoſitifolia* ‡, are likewiſe to be met with in this neighbourhood.

The ſprings of Khonggor, near which we pitched our tents for ſome days, lie towards the Weſt, about five verſts from Arſagar, beyond an open ſteppe, in a verdant and nearly circular ſpot which ſurrounds an oval ſand-bank, overgrown with reeds. Two deep pits, and ſeveral ſhallow ones, had been dug in the lower and more weſtern part of the ground; but they were filled with ſand, ſo that we were obliged to ſink two others, nearly two fathoms deep, to obtain water. Theſe

* Pallas's Travels, Part iii. Supplement, page 740. N. 103. Plate U. Fig. 2.

† Ibid. Part ii. Supplement, page 736. N. 105. Plate Q.

‡ Ibid. Part ii. Supplement, page 735. N. 103. Plate O.

ſprings

ſprings firſt afforded ſweet and agreeable water, but in leſs than twenty-four hours it became impregnated with a digeſtive and Epſom ſalt, and a ſmall quantity of ſelenite, ſimilar to medicinal ſprings ſuperſaturated with alkali. Hence we could not quench our thirſt with this water, as it had a debilitating effect, in proportion to the quantity we drank. It was not, however, remarkably purgative, nor diſagreeable to the palate; for it was cold from paſſing through the ſand. We could deſcry the hillocks of Arſagar towards the Eaſt and E. S. E.; from the North and N. W. the ſmall elevations of the ſteppe; and towards the N. N. W., at a great diſtance beyond thoſe heights, we ſaw a conſiderable mountain, which appeared to be that called *Tſhaptſhatſhi.*—The *Mus arenarius* was common here, as alſo the pretty curled-tailed lizard. We frequently met with the ſcorpion of Arſagar, and ſometimes the ſcarce *Tenebriones* of theſe countries. Serpents were not ſo numerous here as we ſuppoſed they would be, on a ſoil ſo full of cavities. We could not diſcover either foxes or wolves in this deſert; but there were many porcupines with ears, which probably feed upon ſerpents and winged inſects. I have ſeen one of theſe animals convoluted, except the mouth and claws, devour a living ſerpent by the tail, which could neither extricate itſelf nor make reſiſtance.

On proceeding in a ſtraight line from Arſagar to Tſhaptſhatſhi, we paſſed numberleſs ſalt-marſhes and ſaline plains. The ſprings of Khonggor were in the weſtern tract of ſand, which extends from the vicinity of Tſhernoyarſk as far as Saltan Murat, and its particular parts are diſtinguiſhed by different names. This chain of ſand-hills is connected by a ſandy ſteppe, and

and the ſelenetic hillocks of Arſagar are united towards the S. E. by ſmall eminences, ſalt-marſhes, and a dry ſaline ſteppe, with the hillocks of Shoogot; and perhaps with the ſelenetic regions obſervable towards the ſea, near Kaſſalgan, as well as in the environs of Guryef. But towards the N. W. thoſe hillocks of gypſum are joined to the mount of rock-ſalt called Tſhaptſhatſhi. This mount is connected with that of Bogdo, at the foot of which lie, a beautiful ſaline lake, and a very extenſive field of gypſum. It is probable that the aforementioned hillocks form one ſeries with the continuation of the ſalt-marſhes called *Chaki*, and the ſaline rivulet *Tzurkhuli Garſhoon*; with the country bordering on Lake Elton, which abounds with ſalt; as well as with the rivulet Solänka, that falls into the Uruſlan; and laſtly with the river *Uſen*. This uninterrupted ſaline track reaches to *Obtſhy Syrt*, a ridge of the ſteppe which extends to the Ural; it is interſected with ſalt-marſhes, enters the weſtern ſandy region, and the vaſt tract of ſand called Naryn, which is ſimilar to the former, runs along its eaſtern edge, and extends beyond Lake Elton. Here the Naryn is broadeſt, and produces a variety of trees in low ſituations. Its ſouthern extremity is ſaid to be of a ſimilar nature, and is called by the Kalmuks *Delte-modun*, being two days journey diſtant from the ſouthern road of Orenburg, and one day's journey from Arſagar. The whole of this ſaline diſtrict may be conſidered as a bed of ſalt, formerly covered by the ſea, and for the greater part diſſolved, while the two tracts beforementioned, appear to be ſand-banks daſhed by the waves againſt this maſs of ſalt; for they contain a great number of

of ſalt-marſhes and ſprings. If we may truſt to the menſuration or *niveau* of Lake Elton, made in the reign of the Empreſs Elizabeth, the object of which was to cut a canal from the Volga to that lake, it, as well as the whole ſaline ſteppe, is much lower than the ordinary current of that river. Hence we may conſider the cavity between theſe two ſandy tracts as the deepeſt bed of the old ſea, where ſalt has been copiouſly produced from the ſea-water, by evaporation. If this conjecture be well-founded, we may without difficulty account for the origin of the veins of water ſo eaſily diſcoverable in the ſandy deſert, and which probably ariſe from its low ſituation.

On the 15th of May, I left the ſprings of Khonggor. Our guide was of opinion, that we ought to quit the ſaline tract, and direct our march W. N. W. towards the weſtern ſandy diſtrict, in order to advance on the direct road to Tſhaptſhatſhi, and thus be certain of a ſupply of water.

The ſandy ſteppe at firſt preſented ſmall valleys in different ſituations, extending generally from Weſt to Eaſt, and richly covered with verdure. The remarkable plants of this place were a ſpecies of *Carex veſicaria*, with its roots creeping along the ſurface, and the white *Aſphodelus*, which is rather ſcarce. Of the plants common on ſteppes, I here obſerved the *Cheiranthus montanus*, and a beautiful *Antirrhinum fragrans*, both in flower. The *Achillea tomentoſa*, *Tragopogon orientale*, and *Anthemis millefoliata* were beginning to bloſſom. We expected to find water in the low grounds, but the appearance of the *Salſola proſtrata* and the grey ſea-wormwood only afforded us hopes

hopes of brackiſh ſprings. The wandering hordes, when in ſearch of ſprings, are always guided by the appearance of theſe plants. During a journey of ſeveral verſts, we paſſed various dry ſalt pits, and one that ſtill contained ſome water. The ſteppe now became level, and was infeſted with lizards and adders. After travelling twelve verſts, we proceeded more towards the Weſt, over a ſeries of ſand-hills that extended N. W., ſome of which we had before deſcried at a diſtance. On the moſt elevated ſpots, we met with ſeveral pits, but only one of them was acceſſible, and its water had a brackiſh taſte. The ſhrub torloc, or *Pallaſſia*, grew here, and was nearly in bloſſom.

We allowed our horſes to reſt, and afterwards continued our route at a ſlow pace, on account of the almoſt inſupportable heat: after travelling about four verſts, over ſeveral oblong ſand-banks, we arrived at a ſand-hill, which commanded an extenſive proſpect.

On account of the excellent ſpring which Nature has placed on the very ſummit, we recogniſed it to be that remarkable hill called by the Kalmuks, *Täſskenn*. Between this and the country of Saltan Murat, is an extenſive and high ſandy ſoil, known by the name of *Mukhor;* and towards the North is a ſucceſſion of ſand-hills, called *Bayann* and *Soonkhuduk*. The hillock of Täſskenn ſtands iſolated on the plain, is ſeveral fathoms high, and has on its ſummit a circular cavity, three fathoms deep, which contains a well of four arſhines perpendicular, where we found excellent ſpring water almoſt an arſhine deep. The pleaſure we experienced, on making this diſcovery for ourſelves and our horſes, may be eaſily imagined.

The reed *Nepeta graveolens* and wild hemp grew abundantly on the ſides of this cavity.

Ten verſts from Täſkenn, after travelling in a direction between N. W. and N. N. W. we arrived at a beautiful wave-like and very verdant country, where I obſerved the feather-graſs particularly high and thick. Our guide ſuppoſed this country to be *Bayann*. About ſixteen verſts from Täſkenn, we paſſed the traces of an old caravan-road to Orenburg, which terminates directly at the Bereket, a branch of the Akhtouba, where the market of the wandering Kalmuk horde *Yäht* was formerly kept. We paſſed the old wells of this place, now moſtly dry, except one that contained ſome ſaline water; and if we may judge from the nature of the plants which grew in thoſe places, it is probable that all the others produce only ſimilar water. Purſuing our journey ten verſts farther to the N. W., we came to a road made by the cattle of the Kalmuks, on which the traces of the former paſſage of the horde were ſtill viſible in the beaten foot-paths. Theſe conducted us to wells in the vicinity, where we pitched our tents for the night, in the midſt of the ſteppe.—We found ſeveral ſprings here nearly ſurrounded with Tamariſks, among which were four of tolerably ſweet but fetid water, in conſequence of inſects, and the ſpawn of toads, which had corrupted them. Neceſſity alone compelled us to drink of this water, after being diveſted of its impurities by filtration.

On the 16th, in the morning, we continued our journey moſtly towards the N. W. and N. N. W. over a level ſteppe, till, after travelling about ten verſts, we arrived at ſome ſmall elevations, from

from which we could deſcry on the right a long extent of ſand-hills. Theſe appeared to be the ſouthern continuation of the ſandy tract of Naryn, and induced us to conclude that we ſtill travelled too far eaſtward. We had ſcarcely turned towards the Weſt, when we arrived on an argillaceous barren ſteppe, and immediately diſcovered plants of a kind different from thoſe of ſandy regions; ſuch as the ſea-wormwood, *Centaurea ſalmantica*, and *Aſtragalus phyſodes*. After travelling about ten verſts over this ſteppe, we reached the upper road of the caravans of Orenburg, which I had formerly noticed in my travels during the year 1772. We ſaw the height of Tſhaptſhatſhi very diſtinctly before us; and judged from its ſituation, that the wells of *Burlukhuduk* lay on our right: we therefore directed our route along the beforementioned road towards the N. E. and found them about a verſt and a half diſtant.

It was obvious from the traces of water, that the low ground where theſe ſprings exiſt, had this year been filled up with ſnow-water to the edge of the high ſteppe. The graſs in this place was ſtill untouched, which convinced us that we were the firſt travellers who had encamped here in the preſent year. We ſaw great numbers of the *Cucubalus viſcoſus*, *Eryſimum cheirantoides*, *Lycopus pinnatifidus*, *Abrotanum*, *Melilotus*, and *Lapathum*.

As our bread was almoſt conſumed, and I was deſirous of re-viſiting the country of Tſhaptſhatſhi, on account of its plants, a Kozak was diſpatched with letters to Yenataevka, to procure the neceſſary proviſions. I left the greateſt part of my

eſcort at the encampment, and proceeded on the 16th to Tſhaptſhatſhi, where I propoſed to ſtay a night, and employ the following day in botanical excurſions.

* * *

" The Kalmuks, many years ago, diſcovered rock-ſalt on a ſmall mountainous ridge in the middle of the ſteppe, elevated above all the other hillocks: and being accuſtomed to fetch this neceſſary article from that place, they called it *Tſhaptſhatſhi*, which ſignifies the act of cutting with a hatchet; and the ridge itſelf is denominated *Arſargal-Shoogot*, or the ſaline mountains.

" In the vallies I obſerved ſeveral large pools of water, which ſwarmed with the *Falcinellus*, a ſpecies of black ſnipe, with a crooked, enſiform bill. At the foot of the mountains, we paſſed a ſhallow ſalt-lake, ſeveral hundred fathoms long, containing a ſmall quantity of brackiſh ſtagnant water, which, towards the latter end of ſummer, is generally evaporated to dryneſs. On the N. E. ſide of the mountains we diſcovered, at a conſiderable diſtance on the ſteppe, two other lakes; one of which we found to conſiſt of pretty ſtrong ſalt-water, while that of the other was freſh and ſweet. The whole chain of mountains are about eight verſts in diameter: they are divided nearly in a N. W. direction, by a ſaline valley, defended on both ſides by rocky hillocks, with various windings and hollows. On our entrance into this valley, we met with a brackiſh pool, and farther, on a very ſaline ſoil, we found ſome pits which contained a tolerably potable water. Some green ſlopes of ſoil, as well as the

the collateral glens of this valley, were covered with a beautiful *Clematis hexapetala*, or virgin's bower, with brown flowers, on which a rare ſpecies of bees were ſwarming. On ſome adjacent hillocks, calcareous ſlates, ſimilar to thoſe I noticed in other places, aſſumed a ſelenetic form, and preſented, though rather ſparingly, a lamellated ſelenite of a rhomboidal figure.

" From this valley we proceeded to the left, over a ſmall ridge, and arrived at a contiguous oblong and ſhallow ſalt-lake, which lies in a large circular cavity, about a verſt and a half in circumference, and forms many ſmall inlets. This ſalt-marſh was dried up, except a few pools: in its centre a wide but ſhallow ſhaft had formerly been dug, in a tough clayey mire, by order of Profeſſor GMELIN, who had the misfortune here to loſe his inſtrument.—This ſalt-marſh is ſituated in an oblique direction from South to North, and is ſurrounded by barren hillocks, ſome of which conſiſt of ſelenite. In a ſmall valley opening towards the dry part of the lake, at its northern extremity, and along the ſouthern precipice of a conſiderable mountainous ridge, there are many ditches, ſeveral of which appear to have originated from the ſinkings of the earth. Here the rock-ſalt forms a very extenſive ſtratum, as beautiful and pure as cryſtals; it lies immediately beneath a bed of loam, intermingled with marine ſhells. In ſome of the other ditches, we could eaſily diſcover the ſalt lying near the ſurface of the ſoil.

" The ground here is very uneven, and abruptly terminates with the mountain towards the dale. It would, however, be difficult to aſcertain the extent and thickneſs of the ſtratum of rock-

rock-ſalt, without a regular ſearch by the miner; but there is no doubt that it extends to a conſiderable diſtance on this mountainous ridge. From the height where it is dug up, the mountains towards the North and Eaſt preſent numerous declinations of the ſurface, which have probably happened in conſequence of the ſalt having been diſſolved and waſhed away by rain-water. About three hundred and fifty fathoms from the mine, in the ſame direction, we found two ſmall lakes, at the diſtance of ſeveral hundred fathoms from each other: one of theſe, towards the Eaſt, forms a deep natural baſon, and is ſtrongly impregnated with ſalt; while the other is ſomewhat more ſhallow, and only of a brackiſh taſte.

" The weſtern ſide of the mountains is very rocky, bare, and parched. On the ſummit are ſeveral ſepulchral hills of a conſiderable ſize, formed of ſtone and earth. The whole country bears a great reſemblance to the mountain of Inderſk. The *Moluccella tuberoſa* is indigenous on ſeveral of theſe mountains; and I likewiſe obſerved here the remains of the *Biſcutella didyma*, and a great abundance of the wild rhubarb, which is common on the Tartar ſteppes, and the leaves of which, in their form and outline, are exactly ſimilar to the *Rheum ribes*, deſcribed and repreſented by RAUWOLFF. The three ſpecies of plants beforementioned poſſeſs the peculiarities of moſt of the other plants of the ſteppe, which Nature has ſo organized, that at the time of their maturity they expand their branches, and eaſily break off near the roots, ſo that their ſeeds are ſcattered in every direction by the wind. Of a ſimilar organization is the *Cachrys* of this country, which, like the rhubarb, branches into

into a round buſh, eaſily wafted about on the plain; and by its light and ſpongy ſeeds, as well as the *Biſcutella*, by its ſeminal wings, and the *Moluccella*, by its expanded calix, preſent, as it were, pinions, that the ſeeds may be more eaſily carried away by the paſſing gales. In the vicinity of the ſalt-pits, I obſerved the beautiful *Salſola lanata*, and *Onoſma orientalis*, as well as the ſlender ſtems of the *Salicornia Arabica*. The *Lappula* grew here uncommonly beautiful. In verdant hollow places I found the *Papaver rhœas*, which I had not before met with as indigenous in Ruſſia, and the *Bromus ſquarroſus*, both in conſiderable numbers.—This neighbourhood alſo produced many rare inſects; and on the barren hills different ſpecies of eagles built their neſts, which now contained the unfledged eaglets. Near the ſalt-pits were ſcattered ſmooth lime-ſtones, and ſmall flags, on which appeared rude engravings of Mungolian and Tunguſian characters;—with them perhaps a new method of multiplying prayers, or recording the writer's name." Vol. iii. pp. 543 to 546.

The ſmall lakes on the ſteppe, in the environs of Tſhaptſhatſhi, had at this time a plentiful ſupply of tolerably ſweet and potable water. Even one of the two vallies between the hillocks, which was overgrown with bulruſhes and reeds, abounded with good water; but in the other valley, where the rock-ſalt had cryſtallized around its edge, the water was of a ſaline taſte.

The place where I had formerly obſerved this ſalt on the ſurface, was now filled up; but we found it by digging in one

of

of the pits, which we diſcovered in the weſtern part of the valley. All the trenches and pits along the ſides of this valley, and adjoining the hills, were probably thoſe made by the Kalmuks when in ſearch of rock-ſalt, which might readily be obtained in moſt of them, at a very ſmall depth. In the pit which we cleared, it was evident that the rock-ſalt did not form a completely horizontal ſtratum, but had an inflected ſuperficies, and was irregularly waved with grey ſtreaks, apparently originating from a black mire. Immediately above this bed of ſalt, there was a waved ſtratum of grey clay, about an arſhine thick, and covered with a ſandy marl, which forms the whole of the incumbent ſurface.

Beſides the two principal vallies, there are ſome adjacent cavities, in the form of baſons, which appear to have originated from declinations of the earth; and where the ſheep of the Kirghis had wintered. Wild tulips, as large as thoſe produced in gardens, flouriſhed on the fertile declivity.

On the moſt elevated N. W. ſummits of the hills, I found a ſoft porous gypſum on the ſurface, in precipitated layers. The hillocks and riſing grounds of Minggan, which can be ſeen from this place, appear evidently to form a chain of communication between Tſhaptſhatſhi and Arſagar. Towards the N. W. the ſalt-marſhes extend in the ſame direction.

We found here innumerable ſwarms of gnats, but as we were encamped on a detached eminence, and as the weather during the night was tempeſtuous, accompanied with thunder, we were not incommoded by them. On the return of morning, however, we diſcovered under our beds ſome unwelcome viſitors,

viſitors, in the yellow ſcorpions * of this country, though their ſting is not dangerous. The ſhort-headed lizards † were innumerable in the infertile and ſaline ſpots. The females, at this time, were all pregnant with eggs; and I remarked that this little animal always had the general colour of its ſkin ſimilar to that of the ſoil it inhabited.

In the vegetable kingdom, I obſerved ſcarcely any new plants. The *Delphinium atropurpureum*, was now in bloom in the vallies; which plant I likewiſe noticed near Sarepta, in the declinations of the higher regions. I alſo found here the *Verbaſcum Phœniceum*, *Ranunculus lanuginoſus*, *Eryſimum cheiranthoides*, *Aſtragalus tenuifolius* and *alopecuroides*, *Onoſma echioides*, *Achillea tomentoſo*, *Cucubalus glutinoſus*, *Centaurea ſalmantica*, *Arabis hiſpida*, and *Stipa pennata*. The *Rheum Caſpium* grew luxuriantly, and diſplayed its juicy ſeed of a blood-red colour. The plants advancing towards bloom were, the *Sium Falcaria*, *Peucedanum anagymnodes*, and *Eryngium planum*, the ſtalks of which now afforded a very delicious pot-herb; and beſide theſe, the *Dodartia Orientalis*, *Artemiſia Dracunculus*, *campeſtris*, and *Piperita*, *Onopordum Acanthium*, *Phlomis tuberoſa*, *Statice tatarica* and *trigona*, and the *Lepidium latifolium*. Paſt the bloom, but ſtill diſcernible, were the *Cachrys odontalgica*, *Tulipa Geſneri* and *biflora*, *Scorzonera tuberoſa*, *Moluccella*, *Biſcutella perennis*, *Lepidium perfoliatum* and *ruderale*, and *Tamarix gallica* in ſmall ſhrubs, with ſhort catkins, which might perhaps denote a particular genus. Beſides theſe, I alſo remarked, eſpecially on

* Pallas's Travels, Part iii. page 677.

† *Lacerta helioſcopa*. Pallas's Travels, Part i. Supplement, page 457. n. 11.

ſaline ſpots, the *Anabaſis*, *Salſola fruticoſa*, *lanata*; *Polycnemum oppoſitifolium* *, *Camphoroſma monſpeliaca*, *Statice ſuffruticoſa*, *Atriplex Halimus* and *portulacoides*, *Artemiſia maritima* and *contra*, *Axyris ceratoides*, and ſimilar plants.

On the 17th, in the evening, I rejoined my eſcort, which I had left behind at Burlukhuduk. I immediately ordered the horſes to be harneſſed, to haſten my return during the night, and to meet the expected proviſions, of which we begun to feel the want. Towards the dawn we encamped on a wave-like, ſandy, and verdant ſteppe, ſomewhat farther weſtward than Soon-khuduk. Here the *Allium Caſpium* bloſſomed in great abundance. After baiting the horſes, we purſued our journey through Ordelyk, and met two numerous caravans of Tartar and Armenian merchants, who were travelling to Orenburg; in the afternoon, after paſſing the parallel ridges of Ordelyk, and the laſt ſandy eminences, we reached the beautiful low country on the banks of the Aſhuluk, a lateral canal of the Akhtouba, between Urakmullah, and Aſhuluk, two poſts of the military cordon. At the latter poſt, we found ſprings in two different places. The *Moluccella tuberoſa* grew to a very large ſize, and was in full bloom on the argillaceous ſandy height.

About ſix verſts beyond this place, the Aſhuluk deviates from its lateral courſe near the Akhtouba, and flows in a winding channel through a charming verdant and extenſive valley, which the retreating heights of the ſteppe here preſent to the eye; and this river again falls into the Akhtouba, near the military poſt of Dolotkhan. In this valley, I found the follow-

* Pallas's Travels, Part i. Supplement, page 484. n. 96. Plate E. Fig. 2.

ing

ing plants in full bloom, and growing in abundance: the *Carduus nutans*, *Gratiola*, *Arenaria rubra*, *Potentilla bifurca*, and *ſupina*; while the *Triticum repens* was the moſt general ſpecies of graſs. The Volga commonly inundates a part of this low country every year; but that river remained unuſually low at this ſeaſon; its ſtream being ſcarcely two thirds of the height formerly remarked.—The *Tetrao arenaria*, in the Tartar language Bulduruk, flew about here in great numbers.

On the 19th, after we had ſomewhat recovered from the inconveniencies and hardſhips we had experienced in our journey over an infertile ſteppe, and refreſhed ourſelves with new milk, we left this valley and proceeded to Selitranoi-Gorodok, about twelve verſts diſtant. In our paſſage we obſerved ſeveral villages of the Kundure Tartars, or Manguttes, who are the only deſcendants that remain of the ancient horde of the Nagay Tartars. About half way we arrived at an elevation which roſe higher towards the Aſhuluk, where we ſaw the ruins of ancient Tartarian buildings. The country has received the name of Kaſan, from a large iron ſaltpetre kettle lying on the bank of the Volga, and which, according to a tradition of the Tartars, has been thrown on ſhore by a flood. The Manguttes have erected on the top of this eminence, a ſquare brick wall, with high projecting angles. In its vicinity there are many ſepulchral mounds, covered with bricks. Over the whole height I obſerved a very ſlender non-deſcript *Aſtragalus*, in great numbers, and already bearing ſeed in pods. The low country produces plants which indicate a nitrous ſoil, ſuch as the fetid *Lepidium ruderale*, *Peganum Harmala*, *Zygophyllum Fabago*, and *Hyoſcyamus niger*.

" The abandoned ſaltpetre work called Selitranoi-Gorodok is ſituated in the midſt of a hilly tract, extending to upwards of ten verſts in length: here, along the banks of the Akhtouba, on a place from one to two verſts broad, we diſcovered in every direction heaps of rubbiſh, traces of buildings, and tombs of brickwork, being the ruins of an extenſive city of the Nagays. There had been a ſmall fort erected on a hill, which unqueſtionably contained the principal and moſt elegant buildings of the place, and was ſurrounded by a ſtrong wall; but at preſent the fort, which was originally built for the protection of the ſaltpetre work, is in a ruinous ſtate, together with its dependent buildings. We particularly remarked the remains of two buildings, the moſt magnificent of which has lately been cleared of its rubbiſh, with a view to diſcover treaſures: the other, if we may judge from the exiſting ruins, appears to have been a dwelling-houſe with many apartments. The former of theſe buildings, as is evident from its foundation and ſepulchral walls, has been the family mauſoleum of a Khan, with a ſuperſtructure which probably was a houſe of prayer.

" This venerable place, as we were informed, has been plundered of many treaſures, and whole coffins covered with ſilver. The fabric forms an oblong ſquare, in a direction from N. N. E. to S. S. W. about twelve fathoms long, and eight fathoms and a half broad, when meaſured on its ſouthern point. We could diſtinctly trace two equal diviſions, on the northern ſide,

ſide, beneath which were the ſepulchral vaults, as is obvious from the tombs that have fallen in: while the ſouthern diviſion, eſpecially on its portico, has been ornamented with Gothic pilaſters, columns, and arches, the fragments of which are ſtill diſtinguiſhable. Its foundation walls are nearly two fathoms high, and upwards of two ells thick. In the whole brickwork, which conſiſts of beautiful broad ſquares, diſpoſed in the moſt regular manner, there is a degree of taſte and elegance of which I have nowhere ſeen an inſtance among the ruins of the Tartars. The outſide of the walls is not only embelliſhed in all the interſtices between the bricks with glazed earthen ornaments, of a green, yellow, white, and blue colour, in triangular and other figures, but we alſo obſerved on the principal front of the building, the remains of Gothic ſtucco-work, which was decorated with glazed figures, ſuch as artificial flowers, ſhell-work, nay, whole tablets in the Moſaic ſtyle.

" But the tooth of time, and the depredations of the vulgar, have many years ſince converted theſe remarkable veſtiges of antiquity into heaps of ruins. Formerly whole cargoes of bricks were carried from theſe buildings to Aſtrakhan; though, on account of the excellent cement, the workmen who were employed in demoliſhing entire walls, were obliged to deſtroy at leaſt two thirds of the bricks. Tradition relates many extraordinary ſtories of the coins and precious relics which were formerly dug up and collected here in great quantities, but I doubt whether many of thoſe antique treaſures have been reſcued from the plundering barbarians, and judiciouſly conſigned to the antiquarian; or whether any of them have been

tranſmitted

tranſmitted to the Cabinet of Ruſſian Antiquities, which belongs to the Imperial Academy of Sciences."—Vol. iii. pp. 551 and 552.

At a ſhort diſtance from this place is the military cordon of the Aſhuluk; above which that branch iſſues from the Akhtouba. After travelling over a ſecond eminence, we reached Selitranoi-Gorodok, where we found only one wretched fiſherman's hut, preſerved merely to maintain the proprietor's right of poſſeſſion, who has been entirely ruined by the eſtabliſhment of a ſaltpetre-work, ſo that the ruſty kettles of this relinquiſhed manufactory lie ſcattered along the bank of the Akhtouba.

The following is the hiſtory of this abandoned ſaltpetre-work, as I have extracted it from the Chancery Records: In 1715, the Board of Artillery and Fortification granted to Major IWAN MOLOSTOF the privilege of removing his ſaltpetre-works, from the governments of Kaſan and Simbirſk, to the ſteppe on the banks of the Akhtouba, below Tzaritzin, where a ſufficient quantity of nitrous earth had been diſcovered, between Selitranoi-Gorodok and Kraſnoi-Yar. During the ſucceeding three years, the proprietor was ſupported with money from the treaſury, to the amount of nine thouſand eight hundred rubles; in conſequence of which grant the manufactory was eſtabliſhed, and the ſaltpetre delivered to the Board of Artillery, till the death of the Major, in 1737. His brother and heir transferred this eſtabliſhment, for a limited number of years, to Geraſim Glaſof, a merchant of Simbirſk; but the latter became inſolvent,

inſolvent, and the eſtabliſhment reverted to the Crown, in 1740. At length a merchant of Aſtrakhan, Fedor Kobyakof, ſolicited the Board of Artillery and Fortification to grant him a leaſe of this manufactory, which he obtained in 1751, under the following conditions, entered into between him and the Chancery of the government of Aſtrakhan. Fedor Kobyakof engaged to pay the value of the buildings, utenſils, and raw materials of this ſaltpetre-work, as well as of the works at Krafnoi Yar, on the Sharenoi Bugor, near Aſtrakhan, and at Uvick, near Saratof; which payment the government allowed him to render in purified nitre. He had permiſſion to boil ſaltpetre in any number of kettles from three to ten, reckoning two hundred and fifty pood of nitre from each kettle; and to employ the workmen of this manufactory, who were ſubjects of the Crown, for the term of five years, at his own expence. Government agreed to pay him three rubles and twenty-five kopecks for each pood of ſaltpetre; but he was not entitled to export any of that article, without a licence from the Board of Artillery, and without paying the legal duties. Should the production of ſaltpetre not be ſufficiently profitable, in conſequence of the diminution of the nitrous ſoil near the works, he was permitted to transfer the eſtabliſhment to places more favourable to his intereſt. He was exempted from all civil impoſts, and enjoyed the excluſive right of fiſhing in the Akhtouba, to the extent of thirty verſts above and below the ſaltpetre-works. For the protection of this manufactory, the Crown furniſhed him with ten pieces of cannon, and twelve artillerymen, under the command of a corporal. If the works

ſhould

ſhould be interrupted by the inroad of an enemy, or any other unforeſeen event, he was to be free from all reſponſibility. Laſtly, Government granted him permiſſion to purchaſe a village, not containing more than ſeven hundred inhabitants, one half of which he was empowered to remove thence and employ in his ſaltpetre-work. A clauſe, however, was made, that if he were to ſtop the manufacture for ſix months, he ſhould be obliged immediately to ſell the ſaltpetre-works, as well as the ſubjects employed therein, to an individual entitled to poſſeſs vaſſals.

I have not been able accurately to learn how far theſe conditions were fulfilled. The proprietor of the manufactory never employed above twenty of his own people on the ſpot, and at the time of his death in 1760, the eſtabliſhment, which devolved to his eldeſt ſon, very ſoon fell into a ſtate of inactivity. In the year 1765, the Board of Artillery received the laſt produce of ſaltpetre from this place, and every poſſible means were employed to prevent the revival of the manufacture. The retreat of the Kalmuks, and their previous devaſtations in the ſaltpetre-works, afforded an additional pretext for relinquiſhing the buſineſs, and the proprietor took that opportunity of eſtimating the damages at the moſt exorbitant rate. Indeed, the ſmalleſt care has not been taken to provide raw materials, by making artificial beds, and re-mixing the lixiviated earths, ſo that the original ſtock of nitrous matter muſt neceſſarily ſoon be exhauſted. The proprietor was more ſolicitous to derive profit from the fiſhery; and, from a ſimilar motive, his heir has hitherto contrived to keep poſſeſſion of this eſtabliſhment. At

preſent

preſent his contract, as well as a debt of about twelve thouſand rubles, due by him to the late Commercial Bank, are almoſt forgotten.

If the ſaltpetre-works were to be re-eſtabliſhed in the region of the lower Volga, the following ought to be the previous arrangement: In places where the ſoil is exhauſted of its nitrous particles, ſaltpetre beds and drains ought to be made, for which that country is extremely well adapted. Theſe beds ſhould be compoſed of manure, the entrails of fiſh, brine obtained by curing them, with an admixture of lime: ſuch a compoſt would enrich the ſoil, prepare it for the production of ſaltpetre, and enable the manufacturer ſucceſſively to continue the preparation of artificial beds with the lixiviated earth. Many new tracts of ſoil might be advantageouſly employed by making walls, banks, and drains, and thus extending the ſurface; while the efflorescence of nitre, ſpontaneouſly formed, might be profitably collected. What is called the Sharenoi Bugor, and the whole ſoil of the city of Aſtrakhan, is ſtill richly impregnated with nitre. A great quantity of this ſalt might alſo be obtained near the Madſhary, in the vicinity of the river Kuma; a circumſtance which ſhall afterwards be explained. It would farther be neceſſary, on account of the increaſing price of fuel in theſe countries, to evaporate the firſt lixivium of nitre in ſound ciſterns or reſervoirs; a proceſs to which the intenſe heat, and long continued draught of this climate, are very favourable. Thus crude ſaltpetre might be obtained without fuel, and its purification might afterwards be accompliſhed at much leſs expence. I am inclined to believe, that the Indians, by a ſimilar proceſs, are enabled to furniſh

their ſaltpetre to Europeans at ſo low a price. The experiments I have made on this ſubject were attended with the beſt ſucceſs, and I would adviſe this mode of ſaving fuel to be employed throughout all the ſouthern countries of the Ruſſian Empire; as much crude nitre could thus be obtained in ſummer, which might be puriſied at leiſure in winter. The ſaltpetre-boilers ſhould make uſe of troughs that can occaſionally be taken to pieces, and thus more readily conveyed from one place to another; ſuch, for inſtance, as are uſed to carry lime for building; or ſimilar to thoſe drawn about in Podolia, when people are ſent in ſearch of nitrous earth.

On theſe heaps of rubbiſh, and lixiviated beds of earth conſiſting chiefly of ſandy marl, the plants were more advanced in growth than in colder ſituations, and many of them were already paſt their bloom; while in other parts they had ſcarcely begun to bloſſom. The *Secale villoſum* and *proſtratum* appeared here as if they had been ſown. I ſaw in ſimilar profuſion, the *Alyſſum calycinum*, *minimum*, and *campeſtre*, *Lepidium perfoliatum*, *Sinapis rubella*, *Fumaria officinalis*, *Siſymbrium Sophia* and *Iæſelii*, *Lappula*, *Hyoſcyamus niger*, *Ceratocarpus*; but not ſo numerous the *Androſace maxima*, *Hypecoum pendulum*, *Dodartia*, *Cheiranthus nitrarius* and *ſalinus*, *Cachrys odontalgica*, ſome few *Ferulæ*, *Aſperugo procumbens*, *Echium rubrum*, *Lithoſpermum*, *Veronica verna*, *Onoſma orientale*, *Trigonella corniculata*, *Medicago ſativa*, *Malva vulgaris*, *Onopordum*, *Chamomilla*, *Alhagi*, *Salſola proſtrata* and *cricoides*, *Polycnemum vulgare* *, ſeveral ſpecies of wormwood, the *Thlaſpi*, and along the ſhore, the

* Pallas's Travels, Part i. Supplement, page 503. of the original Plate D. Fig. 2.

Lycium

Lycium Tataricum, *Rubus cæſius*, *Meſſerſchmidia*, *Xanthium*, *Aſtragalus contortuplicatus*, wild hemp, and various ſpecies of Orach. The *Morus nigra* was at this time in full bloſſom, but there were few of theſe trees to be ſeen. On the northern part of the plain, there is a ſalt-pool, near which a number of the *Salicornia herbacea* were in bud.

I here diſmiſſed my eſcort of Kozaks and Tartars, who had accompanied me through the ſteppe; and on the 20th at noon continued my journey. Above Selitranoi conſiderable eminences of ſand deſcend towards the Akhtouba, and form what are called the five ſteep banks, in the Tartar language, Biſh-Dſhar; and in the Ruſſian, Pat Yary. Between theſe heights there are beautiful verdant glens, ſome of which contain ſalt pools, where the *Lepidium craſſifolium* * grew with thick roots, ſimilar to thoſe of horſe-radiſh. We paſſed hillocks which the Tartars call Shoggaſy: one of theſe is appropriated for their cemetery. On another iſolated hillock of a conical form, the Kalmuks who were ſtationed here at the military poſts have erected a ſingular monument. It is a circular column, raiſed on the very ſummit of the hill, and conſtructed entirely of the ſkulls and jaw-bones of horſes, cloſely adapted to one another: around it they have made a low wall and foſſe, ornamented with the bones of thoſe animals, diſpoſed in regular order. An epidemic which prevailed ſome years ago, and deſtroyed a number of horſes belonging to the military piquet, as well as to the Kirghis who paſſed the winter here, afforded the materials for this monument. On its top is placed a horſe's

* A dwarfiſh plant, homogeneous with the *Lepidium latifol.*, with thick coriaceous roots.

head of an extraordinary ſize, with the noſe pointing towards the Eaſt, while the other heads are placed with their noſes inwards. The Vignette No. 3. gives a diſtinct repreſentation of this columnar ſtructure.

In this neighbourhood the current of the Akhtouba is increaſed by the waters of the Glukhoi Aſhuluk, which above this place receives the rivulet Khara-uſſuk near Ogurma, another branch of the Akhtouba. The Khara-uſſuk ſeparates itſelf from the Akhtouba immediately below Saſſikol.

We were overtaken on the abovementioned hillocks by the firſt thunder-ſtorm of the ſeaſon, accompanied with a heavy ſhower of rain. The military poſt of Gory Karabali is ſtationed on theſe heights, from which, in a ſerene evening attended with continual flaſhes of lightning, we arrived at an extenſive low country called Karavaily: it was entirely overgrown with the *Holcus odoratus*, and the *Triticum repens*. In this valley were encamped numbers of Auli, or migrating hordes of the Kundure Tartars, among whom was the family of my guide Arſlan, one of the moſt wealthy elders of that nation. I found felt-tents prepared for us here, where we paſſed the night the more cheerfully, as in the neighbourhood of temporary encampments ſurrounded with various herds of cattle, the gnats in a manner diſappear; for at this ſeaſon thoſe inſects are innumerable along the Volga, and allow no reſt to the traveller, if unprotected by a proper tent.

The Kundure Tartars, whom I formerly found in their peculiar felt-tents, in the form of baſkets, which could not be taken to pieces, but were placed on poles ſupported by two-wheeled carriages, had now begun to dwell in huts ſimilar to thoſe of the

the Kirghis. Their former method of conſtructing tents was likewiſe common among the Nagays; but the preſent form has probably been adopted from the Kirghis, who viſit theſe countries every winter; and whoſe tents, as well as thoſe of the Kalmuks, are made in a more ingenious manner. They conſiſt of ſeveral pieces which can be disjoined, and thus form a more capacious and convenient tent. On the ſixth plate I have given a repreſentation of both kinds of tents, as they are at preſent alternately in uſe among thoſe people; and likewiſe a view of their manner of travelling and encamping. All that I can add reſpecting theſe wandering tribes, is, that each wealthy Tartar family commonly has two tents, one for the reception of their viſitors, and the other appropriated to their females. The latter is generally conſtructed after the ancient method *; beſides which, according to the number of the family, they uſually have one or more covered two-wheeled chariots for their wives and daughters. Theſe chariots are painted of various colours; and on the fore-part there is commonly placed a cheſt covered with ornamental tapeſtry, and containing their beſt clothes. The inſide of theſe vehicles, which are generally drawn by two oxen, is occupied by the female part of the family during their migrations. Beſides theſe chariots, they have one or more two-wheeled carts, called Araba, which are loaded with their tents, cheſts, and other heavy articles. The moveables of each family remain together on their journey, and in regular order,

* The Kurdes, who inhabit the heath of Mogan, employ the moſt ſimple means in conſtructing their tents, which might be very convenient for light troops. They place two long bent poles tranſverſely, faſten them at the centre above, and fix their ends in the ground; they then cover them with felt, or mats of ſedge.

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as repreſented on the plate. The hut is placed on the axle-tree of the carriage, in which the miſtreſs of the family always precedes the caravan. The flocks and herds are driven by men on horſeback, and each ſpecies of cattle proceeds in a ſeparate drove. When the tents are pitched in a place ſelected for an encampment, a variegated coverlet is raiſed on a long moveable pole, to the windward of the aperture that emits the ſmoke, in order to promote its aſcent from the tent. At a diſtance from the camp, there is a cemetery on an eminence, as repreſented on the plate. Theſe ſepulchral monuments have ſquare walls of a greater height towards their angles, and are erected only for the wealthy and the prieſts, while the lower claſſes of the Tartars are buried beneath ſmall heaps of earth or ſtones.

The ſeventh plate repreſents the *coſtume* of the women and girls of this nation. Their dreſs differs in ſeveral particulars from that of the other Nagay tribes. The girls wear a ſort of red cap, made of the rind of trees, in the form of a bee-hive, and ornamented with pieces of tin. Corals and ſmall pieces of coin are ſuſpended around this head-dreſs. The gown is made of variegated ſilk ſtuff, has long narrow ſleeves, and is adorned from the breaſt to the waiſt with taſſels of tin or ſilver, buttons, little bells, and rings. They wear a ſtrap or cord over the left ſhoulder, to which is attached a tin caſe, containing amulets, and uſually a large ſhell of the genus *Cypræa*. The women are the moſt inelegant beings imaginable; and, in ſummer, dreſs in an upper gown of an uniform colour, a long white cloth on the head, and over it a common fur-cap. In the perforated right noſtril they wear a ring, adorned with corals, pearls, or precious ſtones. This is alſo conſidered as an ornament

ornament, by the more elegant Tartar ladies of Aſtrakhan.—In the back-ground of the plate, are alſo repreſented the tombs of theſe Tartars.

According to the lateſt calculation, the number of this people, in the whole diſtrict of Kraſnoi Yar, amounts to one thouſand ſix hundred and thirty males. They lead a wandering life along the banks of the Akhtouba, from Kraſnoi Yar to the vicinity of Saſſikol; and are rich in flocks of ſheep, but more particularly in black-cattle, which they employ chiefly for drawing their chariots and baggage-carts; becauſe they are not yet provided with camels. Their horſes are numerous, but not of the beſt breed.

On the 21ſt, in the morning, we left the pleaſant valleys, and travelled over a high ſandy ridge, which, as well as the former, is called Karavaily, where the upper military poſt of Karabalinſkoi is ſtationed, nearly oppoſite Yenataevka. On this ridge, and another greater height beyond it, I found the *Aſtragalus alopecuroides* as regular as if ſown, and in greater abundance than I had before obſerved. Theſe heights are ſucceeded by a riſing plain, extending along the Akhtouba to a low country which is interſperſed with ſaline tracts. We arrived near the advanced poſt of Skvortzov Yar, or the bank of the ſtarlings, where the Aſhuluk receives the Khara-uſſuk. Here the marine acid and pulverulent ſoil everywhere produce long, but inferior graſſes and plants, ſuch as the *Bromus giganteus*, the coarſe ſpecies of ſedge, ſorrel, wolf's-milk, and the *Tragopogon pratenſe*. Innumerable ſwarms of midges infeſt this region. The valley continues as far as the ſand-hills of Saſſikol, or Saſkol, which extend along the banks of a branch of water, called by the

the ſame name, as far as the ſource of the Khara-uſſuk and the Akhtouba.

Saſſikol is a falſe branch of the Akhtouba, and runs to the South and South Eaſt, in a ſerpentine direction, into the ſteppe. This branch of water conſiſts of connected pools and bays, covered with ruſhes, and by which the Akhtouba inundates the country, though only at high water. It is bordered on both ſides by ſand-hills, which are ſaid to be connected with the tract of ſand called Burlu, that joins the ſand-hills of Soon. In the month of June, when the loweſt vallies are diveſted of their graſs, and overflowed by the Volga, the Kundure Tartars retire hither; regarding this country as the upper boundary of their paſturage. The *Pallaſſia* grows on theſe hills of drift-ſand in the greateſt abundance and beauty, becauſe it is never eaten by cattle. At this ſeaſon it was in full bloom, as well as the other plants that uſually flouriſh on looſe land.

We left our horſes to graze on the borders of this valley; and after having paſſed the firſt ſeries of ſand-hills, we proceeded to the ditch of water which diſappears farther ſouthward. It is pretty broad in different places, abounds with fiſh, and is ſkirted by a pleaſant low country, covered with ſedge, tamariſks, and willows. We went along its weſtern verge almoſt to its iſſue from the Akhtouba, about five verſts below the poſt of the military cordon Mankhalinſkoi; we then croſſed it and aſcended the oppoſite ſandy eminences, which terminate in an elevated plain. In the evening, after travelling a ſhort diſtance, we arrived at Mankhalinſkoi, or, as the Tartars call it, Kuyutkhu, where we repoſed during the night.

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On the 22d, early in the morning, we purſued our journey over a beautiful champaign, which the Tartárs call Alabas, where another falſe arm, called the little Saffikol, extends three verſts into the ſteppe, and is accompanied by ſand-hills. Near this open country the military cordon Akhtoubinſkoi is ſtationed; and on a height, near its upper extremity, is the poſt Solotukhino; in the vicinity of which the Governor of Aſtrakhan has eſtabliſhed a farm for rearing cattle. From this neighbourhood, towards the ſource of the Akhtouba, the country is low and rich in wood, which has been ſpared by the hordes of Kalmuks, and thence called Setterta-Modun, or the ſacred wood, corrupted by the Kozaks into Sikkerta. Farther up the Akhtouba there is a ſtill more beautiful ſacred foreſt, and another below Saffikol; but theſe, alſo, deſtructive ſelf-intereſt will ſoon extirpate. The ſand-hills, which bound this low country upwards from Solotukhino, are called the great and ſmall Buruni, and are diſtinctly ſeen from Tſhernoiyarſk; while the ſandy iſles of the Volga, which likewiſe produce the buſhy *Pallaſſia*, appear to form a ſucceſſive ſeries with theſe hills.

I ſent my baggage directly to Volodimerovka, the great Slobode oppoſite Tſhernoiyarſk, with directions to prepare for my paſſage over the river near that place. Meanwhile I wiſhed to reviſit the mountain of *Bogdo*, ſituated in the interior of the ſteppe, and which is diſtinctly perceptible from Solotukhino, at the diſtance of thirty-five verſts. On my way thither I paſſed over a ſandy tract, interſperſed with dells, called Iſhkülll, or Iſhkilly, where a ſolitary ſpring, overſhaded with the white ſmall-leaved willow, was particularly remarkable. Beyond this

tract of ſand, as far as the mountain of Bogdo, and the ſaline lake at its foot, known in the ancient Ruſſian hydrography by the name of Utonſhak, the ſoil throughout was an argillaceous, ſaline ſteppe, where I found the *Crambe Tataria* * thinly ſcattered and in bloſſom. Where the ſteppe inſenſibly riſes near the ſloping ſide of the mountain, I ſaw the Caſpian rhubarb growing in abundance, though the plants were of a ſickly appearance, occaſioned by the frequent digging for their roots.

" *Bogdo-Oola* †, in the language of the Kalmuks, when viewed at a diſtance, in the direction from Eaſt to Weſt, preſents a ſingle, oblong, mountainous ridge, which has a projecting knoll on its northern extremity, and terminates much lower, though precipitately, towards the South. This mountain is ſituated on a ſteppe entirely level; and on account of its reſemblance to a lion couchant, on the ſteep eaſtern ſide, the Kalmuks call it the *Arſlan-Ulá*, or the lion's mountain. The ridge or back of this hill, however, does not run in a ſtraight line, but gradually declines from the oblong higher ſummit, in a direction from N.W. to S.E., terminating towards the Weſt, and forms, by its gently ſloping ſide, a kind of ſhallow, empty pit, from which the rain-water retreats by a

* This plant may with more propriety be called Tatran, or Katran, a name given to it by the Ruſſians and Tartars. M. DE JACQUIN has deſcribed it under the name of *Tataria*.

† *Bogdo* ſignifies, in the Mongole and Kalmuk tongue, ſomething lofty, ſublime, or monarchical: in this ſenſe, the ſovereign of China is by theſe people called *Bogdo-Khan*, or the moſt ſublime ruler; ſometimes alſo, Ammongolong-Khan, or the happy monarch.

glen.

glen. The eaſtern and ſouthern fronts of this ridge, if meaſured by its curvature, may be ſeven or eight verſts in length: it is in ſome places abruptly broken and rugged, while its horizontal ſtrata, interſected towards the Weſt, may be diſtinctly traced. The higheſt cap or knoll is abruptly fractured on its eaſtern ſide: between this precipice, and a ſteep maſs of rocks which lie parallel to the former, there is a wide cleft or chaſm, partly filled up, in which we obſerved another parallel maſs, though not of equal length, conſiſting of marly layers.

"I ſhall deſcribe the horizontal ſtrata of this remarkable mountain, proceeding regularly from the ſummit to its baſe. The proper top of the hill, and a lower ridge of it, extending nearly in a ſtraight line to the Weſt, without following the incurvations around its circumference, conſiſt of a coarſe, calcareous ſchiſtus, which riſes on its higheſt part to about fifty or fifty-five fathoms in a perpendicular direction above the ſurface of the ſteppe. The lime-ſtone is ſolid, and of a lightiſh grey colour; it breaks in tolerably large thick flags, which contain many protuberances and cavities, being very ancient and obſcure traces of petrified teſtaceous animals. Few of thoſe petrifactions are ſufficiently diſtinct, and I have ſcarcely met with one complete ſpecimen, excepting, however, a *cornu ammonis* in a good ſtate of preſervation.

"Beneath this calcareous ſtratum, there is a conſiderable argillaceous bed intermixed with marl or ſand, which forms the greateſt part of the mountain, and is apparently upwards of twenty-two fathoms thick. It is chiefly of a red colour, and alternately conſiſts of white and grey ſtrata, which are often ſandy below, but of a calcareous nature in the upper parts, and

much impregnated with common ſalt. Hence the marl collected in a ſmall ditch, and particularly that in channels formed by the rain on the eaſtern ſide of the hill, as well as on the edges of the white ſtrata, cryſtalliſes in regular, ſmall, ſaline cubes. The greater part of the ſteep ſide of the mountain, as well as the bulky middle ſtratum, and the large cleft above-mentioned, are compoſed of ſuch marl. The rain-water has in many places waſhed away this argillaceous ſoil, and formed deep cavities, ſo that when the cruſt gave way, we frequently fell into them as deep as our loins; nay, it is reported, that in the middle ſtratum, where we ſtill obſerved ſeveral deep cavities and pits, there was a prodigious and almoſt bottomleſs abyſs, into which the Kalmuks, from a religious zeal, formerly threw various oblations, ſuch as gold, coats of mail, and articles of dreſs, ſo that they could hear them drop into the water. But this cleft, which in their language was called Bogdoin-Kunda, was filled up previous to the retreat of their laſt horde, governed by a Khan, and cannot now be diſcovered.—In the argillaceous ſtrata we occaſionally obſerved ſelenites, and the preſent Kalmuks aſſured us, that here, as well as in the weſtern ſandy part of the mountain, there have ſometimes been found large and pure cryſtals of common ſalt of a very hard conſiſtence, from three to four inches in diameter: theſe cryſtals were held in great eſtimation among that people, on account of the ſacred nature of the place, and were denominated Morel Dabaſſun; but ſince the departure of the horde called Torgotes, no rock-ſalt of that magnitude has been diſcovered.

" Below the horizontal ſtratum of marl now deſcribed, there is a grey, coarſe ſand-ſtone, frequently intermingled with gravel and

and ſmall pebbles, principally lying in prodigious flat rocky maſſes, but partly alſo in the form of a coarſe ſchiſtus. This horizontal bed of ſand-ſtone preſents only an angle, at its eaſtern point, which chiefly conſtitutes the external large dorſet beforementioned, in a parallel ſituation to its parent mountain; after which it runs into a precipice, in an angle of from thirty-five to forty-five degrees, under the weſtern part of the hill; ſo that this ſtratified maſs of the large cleft which lies open between the dorſet and the mountain, produces, at the ſide of the former, a rocky and obliquely precipitated ſoil. Along the large dorſet, the ſand-ſtone here and there preſents remarkable clefts and crevices, among which one in particular attracted my attention; it was decorated with ſhrubs of the buckthorn, and afforded a view highly pictureſque.

"The eaſtern declivity of this rocky dorſet has a very ſingular appearance. As the ſand-ſtone has probably in ſeveral places been ſoft, it is apparently corroded with various ſmall globular cavities reſembling grotto-work. It is obvious that this uncommon formation of ſand-ſtone could be produced by no other cauſe than the power of the daſhing waves, at a time when the whole ſteppe formed part of the Caſpian Sea*; for theſe excavations cannot be diſcovered on the higher parts of the ſand-bank.—On the plain extending towards the ſaline lake, there are ſcattered ſeveral fragments of cliffs which appear to have been entirely covered by water. Among theſe we met with globular pieces of various ſizes, which, on breaking

* Vide the intereſting treatiſe on the ſeparation of the Caſpian and Black Seas, page 78 and following of this volume, as extracted from the author's former Travels.

them,

them, were partly hollow, and contained ſand not unlike regular geodites.—During the prevalence of eaſterly winds that blow with violence againſt this grotto-work, the higheſt part of which is towards the South, it appears to a perſon ſtanding on its ſummit, as if he heard the diſtant murmuring of many hundred voices joined in prayer. The phenomenon was particularly ſtriking on the day when I viſited this region, during a violent ſtorm from the North-Eaſt. The credulous Kalmuks are told by their prieſts, that the tutelary ſpirit of the mountain, or the white old man, whom they call *Tzaghan Ebughen*, reſides in a large cavern beneath this mountain; and that this is the choſen abode of ſaints, who are engaged in continual devotion, and ſpiritual ſongs.

" On the lower ridge of the mountain, ſituate towards the ſouthern ſteppe, the ſand-ſtone forms the whole body of this lofty acclivity, on which the *Pallaſſia* grows in abundance: there is, however, a ſmall projecting part of the mountain, oppoſite to the ſouthern angle of the higheſt peak, the uppermoſt part of which conſiſts of lime-ſtone. But the horizontal bed of ſand declines conſiderably in a weſtern direction, deviating alſo towards the North, ſo that the ſtrata of this mountain throughout appear to have ſunk together, and formed the flat baſon before deſcribed.

" Below the ſand-ſtone, towards the South of the ſteppe, there is a very fine ſchiſtus of ſand, combined with marl richly impregnated with a bright red colour; which the ſuperſtitious Kalmuks formerly uſed for painting their tent-poſts and other wooden utenſils. They held this marl in high eſtimation, conſidering

ſidering as ſacred the excellent colour it produced, which they diſtinguiſhed by the name of *Soſſun*.

" On the higheſt part of the mountain, and on the moſt elevated ſpot of the rocky and ſandy dorſet already deſcribed, the Kalmuks have erected a monument of flags filled up to the height of ſeveral fathoms, ſo as to form ſquare columns, which may be ſeen at a great diſtance. Although I have repeatedly ſurveyed the whole circumference of this mountain on foot, I could diſcover but few traces of their ſuperſtitious cuſtoms. At a diſtance of ſix verſts, however, from this remarkable aſſemblage of hills, towards the Volga, I obſerved an ancient altar of the Kalmuks erected of alternate layers of ſedge and reeds, called *Dændær*, which is the only veſtige of a feſtival formerly celebrated in this place. On the ſame ſide, at the diſtance of a verſt from the mountain, in a level country, there is a ſmall lake of ſweet water, on the ſhore of which the Kalmuks uſually encamped."—Vol. iii. pp. 667—672 *.

After a briſk ride we reached the mountain of Bogdo towards night, during a dreadful thunder-ſtorm, accompanied with a little rain, which was however but a ſhort interruption of the fine weather, ſo that I was enabled to employ the following day with advantage. I found the ſame plants that had formerly been the object of my reſearches in this country. On

* The author has been ſo prolix in the deſcription of this mountain, that ſeveral paſſages, in which he gives too minute and circumſtantial accounts of the particular ſpots, being of no intereſt to the reader, have been here purpoſely omitted.—*Tranſl.*

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the calcareous and rocky back of the mountain, I now ſaw the *Lichen eſculentus* in uncommon abundance, which I formerly had not remarked in this place. The thorny *Hedyſarum*, mentioned in my former Travels, I found on the projecting ſide of the mountain, which conſiſts of a calcareous marl, where this indigenous plant is peculiar to the ſpot. Its far-ſpreading root is almoſt as ſweet as that of liquorice. As the level ridge of the mountain, when I reviſited it in July, had been ſcorched in conſequence of a recent fire on the ſteppe, the very numerous and venomous tarantulas, *Phalangium araneoides*, appeared to have retreated to the higheſt barren and rocky ſummit. Here I found them of different ſizes, under almoſt every flat ſtone; an aſſemblage of theſe inſects I had never before obſerved, as they uſually live in a ſolitary ſtate.

On the ſame day, the 23d, after having made a botanical excurſion, from three o'clock in the morning till the afternoon, and given ſufficient employment to my deſigner, I ſet out on my return to the Volga, and travelled, without reſting till night, ſixty verſts to Volodimerovka. On the road I met a Kozak who, together with agreeable letters, and much wiſhed-for refreſhments from Tſhernoiyarſk, brought me intelligence that my affectionate travelling companions waited for me there. During the ſucceeding night, we made the neceſſary preparations for croſſing the river, and notwithſtanding a ſtrong wind which ſprung up from the S. E., we ſet out before the dawn, in two barges, from Volodimerovka. This ſmall place has at preſent a population of three hundred and ninety-eight males of Little-Ruſſia, together with other inhabitants. I have already mentioned that the Volga is of an extraordinary breadth

near

near Tſhernoiyarſk. It alſo forms here two branches, which are divided by ſandy iſles. We embarked when the river was not agitated by the uſual gales from the S. E. and N. W., which in this place are often fatal to paſſengers. But ſcarcely had we reached the middle of the very extenſive current of Volodimerovka Voloſhka, when the wind became ſo impetuous, that our ten-oared ſhallop was every moment in the moſt imminent danger, by the waves breaking over us in torrents. We felt ſtill greater apprehenſions for the ſafety of the barge which contained our carriages and baggage, till we ſaw it lie to, on the farther ſide of the collateral branch, near an iſland, and afterwards proceed under its protection, at a conſiderable diſtance behind us. We continued our courſe on the open river, not without danger, and ſoon loſt ſight of the barge. At length, after the greateſt peril, and not till our rowers were completely fatigued, we reached the oppoſite bank of the greater Volga; but we were not able to paſs the point of land which forms the bank of the river immediately above the fortreſs of Tſhernoiyarſk, where the breakers were at this time too dangerous. We therefore landed above that point, and proceeded on foot to the fortreſs. The continuance of the tempeſt through the whole day, and the following night, excited our anxiety for the ſafety of the other boat; till at length we had the ſatisfacton to ſee it arrive on the ſubſequent morning.

On the 25th we joyfully ſet out for Sarepta, where we arrived at the dawn of the following day.

The country of Sarepta, ſo advantageouſly ſituated for increaſing the knowledge of plants and inſects, engaged my attention ſo much in the month of June, that I did not think

of my future journey. I was, however, much againſt my inclination, obliged to continue here part of the month of July; on account of the inſupportable heat occaſioned by the ſteppe, which was on fire to a great extent, on both ſides of the Volga; and likewiſe from the circumſtance that my daughter caught the ſmall-pox, doubtleſs the ſecond time, at Sarepta, when this epidemic had begun to diminiſh, after having raged with violence ſince the beginning of winter.

Wiſhing, however, to undertake a journey during the fine weather, and to viſit the ſteppe beyond the Volga, I travelled on the 5th of July to Tzaritzin, in order to be ferried over the river. I found this city almoſt entirely conſumed by a fire, which broke out two days before my arrival. On the 6th I croſſed the Volga, and continued my journey between that river and the Akhtouba, over a low country interſected with ſmall branches of water called Yeriki, as far as Beſrodnaya Sloboda, or Verkhnei Akhtoubinſkoi Gorodok, eighteen verſts diſtant. The ſandy and marly ſoil of this low country produces moſt excellent crops of hay. The beautiful oak trees here, as well as everywhere along the Volga, are intermixed with the *Ulmus campeſtris* and dwarf elms, Tartar plane-trees, poplars, willows, aquatic elder-trees, and other ſhrubs. Beyond Barſkoi Yerik, but particularly around Olovatoi Yerik are found, beſides thoſe already mentioned, a number of large mulberry-trees bearing fruit of a white, black, and pale violet colour. If theſe trees had, as is generally ſuppoſed, been brought hither and planted by the Tartars, and were not really indigenous, they would not be found growing in an uneven ſoil, which is frequently inundated, and where they grow widely

widely ſcattered among other kinds of wood, inſtead of being planted in regular order. Nevertheleſs it appears to me very doubtful, whether theſe mulberry-trees, the repreſentation of which is given in the ſecond part of Plate I. of the *Flora Roſſica*, ought to be exibited as a ſeparate genus, or whether the *Morus tatarica*, be only a variety of *Morus alba*, to which perhaps the *Morus indica* alſo belongs.

Beſrodnaya Sloboda has lately been adorned with a new church, which was attended with great expence to the village, and proves its increaſing wealth. On the contrary, the houſe of M. Ryſhkof, the ex-director of the culture of ſilk, which has been dearly enough paid for by the Crown, has, in conſequence of being ill-built, become a ruin in leſs than fifteen years. A ſimilar fate threatens the houſe built by him for the rearing of ſilkworms, below the village, at the edge of the high ſteppe.

This village was eſtabliſhed and appropriated to the manufacture of ſilk during the reign of the Empreſs ELIZABETH. The wild mulberry-tree, which grows in the adjacent low country, induced the government to invite hither Armenians, and other foreigners ſkilled in the culture of the ſilk-worm. But this invitation was not accepted by a ſingle individual, as the banks of the Terek afforded a better proſpect of ſucceſs. For the ſame purpoſe, about two hundred and fifty ſtraggling peaſants were ſettled here in a new village, and exempted from all taxes, on condition that they would employ themſelves in this valuable branch of domeſtic economy. The direction of this eſtabliſhment was intruſted to the Hungarian Major Parobitſh, who likewiſe had the ſuperintendence of the vineyards planted by

him at Aſtrakhan. But on account of his other purſuits, the eſtabliſhment was much neglected.

During the reign of her Imperial Majeſty CATHERINE THE SECOND, the Aulic Counſellor Nebolſin, of Aſtrakhan, was ſent to Akhtoubinſkoi Gorodok, to give more activity to the cultivation of the ſilk-worm, and his exertions proved ſucceſsful. The peaſants, however, were little inclined to purſue this branch of induſtry; becauſe they could at all ſeaſons derive greater advantage from fiſhing. They inceſſantly ſupplicated the Court to employ them in military ſervice as Kozaks.—However, in 1772, my travelling-companion, then Aſſeſſor, and now Counſellor of the College, Nikolai Rytſhkof, was re-appointed Director of this eſtabliſhment; and her Imperial Majeſty condeſcended to give inſtructions, in her own hand-writing, for the management of this profitable buſineſs. The new Director found means to deliver to the Court in the ſame year ſix pood of ſilk; a larger quantity in the following year; and by theſe and other perſonal means which he employed, he ſucceeded ſo far as to induce the Court to enlarge the inſtitution. In 1779, the Court iſſued an order, that the Imperial College of Economy ſhould furniſh to the Director one thouſand three hundred families, of voluntary peaſants, from the aforementioned Imperial Dominions. Theſe families were tranſplaced within two years, and ſettled along the banks of the Akhtouba in ſix villages. The immunities granted to their predeceſſors were to be continued to them, as long as they ſhould employ themſelves in the culture of ſilk, not for the benefit of the Crown, but their own emolument, and pay their rents or taxes in ſilk, at the low price of one hundred and twenty rubles a pood.

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The ſame difficulty, however, was experienced with theſe as with the other cultivators of ſilk: they had an invincible and rooted diſlike to the employment, and conſequently were not anxious for its increaſe. The continual impediments that aroſe, and their own obſtinacy, prevented them from enjoying the advantages they would have acquired, by directing their attention to this buſineſs, without relinquiſhing the fiſheries. Theſe they might likewiſe have carried on, by occaſionally employing their wives and children in the eſtabliſhment. Although cogent meaſures were reſorted to, the culture of ſilk yearly decreaſed; nay, the malignity of the peaſants roſe to ſuch a degree, that, to deſtroy the ſilk-worms, they ſprinkled them with ſalt-water. The perpetrators of this atrocity were indeed diſcovered, and puniſhed, by the Government of Saratof; but as the peaſants alſo endeavoured to extirpate the mulberry-trees of the valley, by ſetting fire to the graſs, the ſilk manufactory was ſtopped by an order of the Court; and it was left to the option of the peaſants, whether they would continue the culture of ſilk-worms for their own advantage, while, in reſpect to rents and taxes, they would be put on the ſame footing with other ſubjects. From this period, 1714, none of them have evinced the leaſt inclination to cultivate this branch of trade, and they even endeavour gradually to deſtroy all the mulberry-trees.

It is remarkable, that the repugnance of the Ruſſian peaſants to the cultivation of ſilk-worms ſhould have been hitherto ſo invincible; for their malignity has alſo been evinced in the ſilk manufactory eſtabliſhed at Staroi-Krym. This ſpecies of obſtinacy has proved a great impediment to the proſperity of Southern Ruſſia, where the mulberry-tree is abundant and flouriſhing.

flouriſhing. It is quite otherwiſe with the Armenians and Gruſines, or emigrants from Georgia, as well as with the Tartars and Greeks in the Crimea, who voluntarily carry on this branch of commerce. The moſt certain means of introducing this ſource of national wealth, and of ſaving the Empire upwards of a million of rubles, which are annually paid to the Turks, the Perſians, and the Italians, for their ſilks, would be to eſtabliſh colonies of the Aſiatic nations, particularly in the peninſula of the Crimea, where the mulberry-tree grows uncommonly faſt, even in a dry ſoil, when properly watered.

On the whole, the Aſiatic method is far preferable to that formerly practiſed on the Akhtouba, where much time and expence was waſted in feeding the ſilk-worms with gathered leaves, which ſoon decayed, and rendered the frequent ſhifting of their beds neceſſary. The Perſian or Boukharian rears his mulberry-trees to about ſix feet high, which they attain in four or five years. He then begins to lop their tops and branches, which are given to the inſects, as ſoon as they have ſufficient ſtrength, by placing them gently on their beds. By this means the ſhoots remain freſh and ſucculent, and the worms devour them even to the woody fibres, ſo that no part of the nutritive foliage is waſted. As theſe inſects are every day ſupplied with food, the leafleſs branches gradually form a kind of wicker-work, through which the impurities paſs, ſo that the cheerful worms preſerve the requiſite cleanlineſs without trouble to the cultivator, and ſpeedily attain a vigorous ſtate. In this manner they are continually ſupplied with leaves, till they prepare to ſpin, when ſmall dry bruſhwood is placed in all directions over the leafleſs branches, and on this the worms ſpin

their

their ſilk. Two perſons, an adult who lops the branches, and a child who collects them, are thus enabled quickly to procure food for a great number of ſilk-worms. The mulberry-tree in our climate produces new ſhoots twice every ſummer. Theſe ſhoots acquire in the ſame year the firm conſiſtence of wood, and in the ſubſequent ſpring afford an abundant crop of foliage. In Perſia and Boukharia, where the ſummer is longer and vegetation more vigorous, the ſhoots may even be cut twice a-year. The tree, by this method of cutting, remains always low, and produces a greater number of young ſhoots from its trunk, as well as from its branches, every ſubſequent year. By ſtripping them of their leaves, however, many branches wither, and not only the buds are loſt, and much foliage waſted, but the worms receive leſs nouriſhment, as the leaves ſooner decay. It has been remarked in the ſilk eſtabliſhment near the Akhtouba, that the worm, when compelled by neceſſity, eats the leaves of the *Acer tataricum*, which reſemble thoſe of the mulberry-tree.

On the 7th, in the morning, I advanced as far as Sredney Akhtoubinſkoi-Gorodok, diſtant thirteen verſts, and the moſt wretchedly built village on the banks of the Akhtouba. Its inhabitants are ſo extremely poor, that they are obliged to cultivate the glens of the ſteppe, inſomuch that ſome of them carry on agriculture from fifty to ſixty verſts from this river. The whole ſteppe is dry, greyiſh, and ſaline, ſome ſmall declinations excepted, which ſtill produced ſeveral verdant plants, particularly a great abundance of the liquorice ſhrub. Small and, as it appears, ordinary ſepulchral hills are ſcattered over this ſteppe.

When

When I formerly travelled in this country, there was not a village to be ſeen near the Akhtouba, below Niſhnè Akhtoubinſkoi-Gorodok. Since that period, however, two conſiderable villages have been built below Beſrodnaya, and one above it, which is called the great village Pogrominſkaya, and has been colonized by boors from the Imperial domains. Sredney Gorodok, at that time, likewiſe received an additional number of inhabitants.

The firſt of the lower and newly-built villages is Saplavna, ſituated at the diſtance of thirteen verſts. The border of the high country is covered on this ſide with ſmall ſepulchral hills, and a few others are diſcoverable in different parts of the ſteppe. I generally obſerved on each of theſe, a ſhallow excavation from which the ſoil of the hillocks appears to have been removed, and ſometimes, with this view, cavities have been dug around the hillocks.

In a direct line over the ſteppe, towards Saplavna, where the fields of this village lie, twenty-five verſts from the Akhtouba, I was informed that there is a large heap of bricks, called by the Ruſſians, Metſhetnoi Bugor, or the hill of the Houſe of Prayer, and by the Kalmuks, Temahne Balgaſum, or the camel's tower. The Kalmuks give the following account of this place: Dſhanibek-Khan kept here a number of mares, whoſe milk was conveyed by tubes, from this tower to his reſidence.—But the numerous ſepulchral hillocks ſcattered over the ſteppe, ſufficiently indicate the purpoſe to which this building was formerly conſecrated.

Saplavinſkoi, ſituated on the verge of the eminence, is divided into two parts, one of which borders on the high country,

country, where the Podſtepnoi Yerik iſſues from the Saplavnaya; the other part lies ſomewhat lower, and is completely inundated at high water. It contains upwards of one hundred and fifty houſes.

From Saplavinſkoi to Priſhibinſkoi, the road runs partly through vallies covered with ſedge, and extending along the Podſtepnaya. Seven verſts from theſe villages, and near a marſhy ſoil overgrown with reeds, I remarked the traces of a ſquare building, which formed a regular ſquare, each ſide meaſuring about eleven fathoms, and fronting a principal point of the compaſs. The walls of this building were demoliſhed to their foundation; and in ſome parts to an ell below the ſurface of the ground. From the flat-formed ſquare bricks of this building, it is manifeſt that it was erected by the Tartars.

Priſhibinſkoi is a conſiderable village, conſiſting of one hundred and ſeventy farm-houſes, pleaſantly ſituated on the edge of the Podſtepnoi Yerik, which immediately beyond it falls into the Priſhip: here is a principal poſt of the military cordon, which, paſſing the ſaline lake Elton, is continued in a chain to the fortreſs of Uſen. There is alſo a road from lake Elton, extending over the high ſteppe, and paſſing near the ſource of the rivulet Tzarevka; the diſtance to this lake is computed at one hundred and eighty verſts.

A few hundred fathoms from Priſhibinſkoi, we ſaw a ſteep hillock of brick-rubbiſh, which doubtleſs was the ruins of an ancient building. On the S.E. plain there is a ſmall lake, which, according to the traditions of the Tartars and Kalmuks, is the Shikerly, or ſugar-lake; but, according to others, that lake is farther down in the adjacent valley.

From Priſhibinſkoi is diſtinctly ſeen the beautiful valley of Tzarevy Pody, or the Royal reſidence. It lies at an angle of the Akhtouba, and an irregular protuberance of the high ſteppe; it is upwards of fifteen verſts long and ſeven broad. On account of an inundation of the lower ground, we proceeded along the edge of the high ſteppe, environed by a ſtill higher ground, on which are ſeveral reſpectable monuments of the Tartars. The fetid and muddy rivulet Kulguta, or Kugultu, partly interſects this high country, between which and the brook Tzarevka flowing from the ſteppe, at the diſtance of ten verſts from the Priſhib, I pitched my tent for the night, near a farm-yard called Guſhkova-Khuter, in order to inveſtigate ſeveral Tartar antiquities in this neighbourhood.

About a verſt hence, in the vicinity of another farm called Davidkof-Khuter, and near a ditch * of water, there are ſome curious remains of Tartarian antiquity. I remarked here ſeveral other traces of houſes and ſepulchral hills, ſimilar to thoſe which I had before obſerved above the rivulet Kugultu on the higher ſteppe. Among theſe are three ruins, encloſed by a ſquare bank of rubbiſh, without a ditch, and with an outlet towards the South.

The monument near the Podpalatnoi-Yerik is a ſepulchral mound of a flat form, raiſed on a ſquare eminence, and conſiſting of ſix contiguous and very low arches covered with earth: its baſe is about one hundred and fifty paces in circumference, and not above a fathom high; but, together with the ſquare on which the vaults are erected, it is three

* This ditch is called Podpalatnoi Yerik, and empties itſelf by one branch into the Tzarevka, and by another into the Akhtouba.

fathoms

fathoms of a perpendicular height. This ſquare monument is encloſed by the foundation of a thick wall, which conſiſts of an imperfect ſand-ſtone, quarried on the oppoſite bank of the Volga. There appears to have been an entrance in the northern ſide of this wall, which forms an oblong ſquare of twenty-nine fathoms long, and twenty-ſeven fathoms broad. Its baſe, meaſured from North to South, is forty-ſeven fathoms in extent, and fifty-ſix from Eaſt to Weſt. The ſpace around the vaulted hillocks is conſiderably excavated within this encloſure; and the vaults of the monument, which probably have long ſince been plundered of a conſiderable booty, deſerve a more accurate deſcription, on account of the ſolidity of their conſtruction. The walls that ſupport them are formed of pieces of rough, unhewn ſand-ſtone, about an ell high: the vaults themſelves are almoſt flat, and conſiſt of about ſix layers of ſquare, oblong bricks, placed alternately, ſo that one by its breadth ſupports and covers two others. The ſpaces between them are nearly an inch broad, and filled up with a cement which in ſome places appears to have been poured in, while in a liquid ſtate. It has, however, acquired ſuch a ſolid conſiſtence, that it is eaſier to break the well-burnt bricks, than to ſeparate the mortar. This grey cement appears to be a mixture of unſlacked lime, pulverized charcoal, and pounded ſand-ſtone, inſtead of the ſand uſed for building. In that maſs I obſerved many particles of lime, as white as ſnow, which readily crumbled into duſt, as well as large and ſmall particles of charcoal: this ſubſtance being reduced to a fine powder, has probably imparted the grey colour to the cement. Perhaps the admixture of charcoal duſt may produce an effect ſimilar to the earth of Pozzola;

which, however, muſt be decided by experiment. The durability of this cement may alſo be aſcribed to a mixture of ſour milk, which, we may ſuppoſe, muſt have been in great abundance among a wealthy paſtoral people. In ſhort, the mortar of theſe vaults is, notwithſtanding the conſtant moiſture from above, and the ſaline nature of the ſurrounding ſoil, the beſt, hardeſt, and drieſt I have ever ſeen; and the ruins of the flat vaults almoſt reſiſt the force of the pick-axe, inſomuch that they can only be reduced by ſmall fragments.

On the weſtern ſide of this mauſoleum, diſtant about forty-two fathoms, there is a round heap of rubbiſh, apparently the ruins of a brick tower, from which a wall of an ell thick extends five fathoms to the E. S. E., and thirty-one fathoms to the S. S. E., forming an obtuſe angle at a circular pit, where it terminates. The bricks and ſhards ſcattered here, probably belonged to an ancient aqueduct. I ſhall not attempt to decide, whether this has been an apparatus for raiſing water, but ſo much is certain that the circumjacent ſoil, having been made perfectly level, indicates a former ſtate of agriculture. Beſides, it is manifeſt, that at the loweſt ſide of the parapet there has been a mound or bank, formed in regular angles, from eight to ten paces broad, and upwards of a thouſand paces long. The earth for this bank has been taken from pits diſcoverable in ſeveral places; and this encloſure could have ſerved no other purpoſe, than that of a reſervoir of water for gardens. An excellent plantation of mulberry-trees might be eſtabliſhed here, eſpecially as the high water of the Volga could be eaſily conducted through a narrow ſwampy ditch into the encloſed ſpace, which might ſerve as a reſervoir to communicate a due degree

degree of moiſture to the ſoil.—Innumerable marſhes, along the Volga and Akhtouba, might alſo be occupied in a manner ſimilar to that practiſed by the Tartars, in the environs of Aſtrakhan. They encloſe the marſhes by ſlight banks, and cultivate them for the production of rice, cotton, *Seſamum*, tobacco, ſaffron, millet, *Holcus*, maize, ſtrawberries, madder, and even mulberry-trees, for the ſubſiſtence of ſilk-worms. But inſtead of theſe valuable productions, the beforementioned marſhes are ſo much neglected, that they ſcarcely produce any hay. This country along the Akhtouba is the more deſerving of cultivation, as it enjoys an extraordinary degree of ſolar heat, by its declivity towards the Weſt, and is ſheltered on the northern ſide. There is no doubt that very favourable ſituations might be choſen here, for the cultivation of the vine.

The popular tradition relative to the monument near the Podpalatnoi Yerik is, that the palace of the Khan formerly ſtood there. I imagine however that this ruin, as well as the numerous vaulted piles of brickwork, are the ancient ſepulchres of the Mongole Tartar Princes, and other perſons of diſtinction. The leaden tubes, which are ſaid to have been found near theſe vaults, have probably been uſed inſtead of the ſpiracles uſually made in the Mahometan tombs.—It is certain, that in the ſepulchres of this country immenſe riches have formerly been diſcovered, conſiſting of jewels, vaſes, and ornamental horſe-furniture of maſſy gold and ſilver. The major part of this treaſure has been ſecretly diſpoſed of to the goldſmiths and merchants; while the remainder is ſtill preſerved

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in the cabinet of curioſities belonging to the Imperial Academy of Sciences at St. Peterſburg.

About one hundred fathoms N. W. from the great mauſoleum, there is a large heap of rubbiſh, or ruins, thrown together, and nearly one hundred fathoms in circumference: it appears to have been part of the materials of a building. About ſixteen fathoms farther towards the W.S.W. is another ſquare maſs of ruins, of a moderate ſize. One hundred fathoms N.W. from the latter, and above two hundred from the large monument, a third oblong and very conſiderable pile appears, which is probably the ruins of a building: and two hundred fathoms weſtward, there is a circular ſepulchral hill, ſimply vaulted with bricks. This hill is oppoſite to, and about one hundred fathoms diſtant from a lake, which is a verſt long, and ſurrounded with dwarf willows: the lake contains a ſweetiſh water, and is much frequented by a variety of the feathered tribe. According to tradition, it is aſſerted to be the true ſugar-lake of KHARA-SHISHI, the divorced conſort of the KHAN DSHENOVAK, who is ſo often the ſubject of converſation among the Kalmuks. This lady, it is reported, had fixed her habitation near the above lake, and ordered a large quantity of ſugar to be thrown into it, to decoy aquatic birds from the circumjacent parts. By this ſtratagem the Khan, her huſband, who was a great lover of hawking, was induced to reſort to the vicinity of her reſidence, and thus ſhe eventually effected a reconciliation. All the heaps of ruins in the valley are diſtinctly viſible from this lake; and there is alſo a diſtant proſpect of the pile ſituated on the high ſteppe beyond the Tzaritza, which I have already mentioned

mentioned in my former Travels, and the large ſepulchral hillocks beyond the Kugultu.

In ſome parts of this low country there is ſaid to be a regular road paved with bricks, leading over a ſwampy ditch; and in other places ſmall regular arches of brick-work are diſcoverable, which probably have ſerved as a ground-work for the felt tents of the chiefs in a country ſo rich in paſturage. In my opinion, the ruins are not the remains of dwelling-houſes, but partly of moſques, and partly of vaulted chapels, which had been encloſed by walls like the modern cemetaries of the Nagays. A wandering nation, ſuch as were called the golden horde of theſe countries, could no more be induced to reſide in houſes, than the Khans and Princes of the Kalmuks along the banks of the Volga; though the fortreſs of Yenatævka had been purpoſely eſtabliſhed, and dwelling-houſes built for their accommodation.

The whole border of the high ſteppe, above the valley of Tzarevy Pody, is covered with innumerable ſepulchral hills, and thoſe called Kurgane, which are ſcattered down along the banks of the Akhtouba, as far as the Solanka, and upwards beyond Saplavnaya. Some of theſe hills are very large, and may be ſeen at a great diſtance; but nearly the whole of their vaults have been opened. The largeſt ſepulchral monuments are erected on the moſt prominent parts of the high country, as in Siberia.

This valley, and the country called Mant-tokhai, ſituated between the Akhtouba and the Volga, and extending from Tzaritzin to Tſhernoiyarſk, have for ſome years paſt uniformly been the autumnal head-quarters of the Kalmuk Khans, on account

account of their excellent paſturage. It likewiſe appears, that this low country was choſen, in the time of the golden horde, by their princes and chiefs, as a ſummer reſidence; while, on the contrary, their head-quarters during winter were farther ſouthward, in the environs of Selitranoi Gorodok or Dſhigit.

In order to make phyſical and geographical obſervations on the deſert ſteppe, I propoſed to travel from Tzarevy-Pody to that part of Rynpeſki *, oppoſite the mountain of Bogdo; and afterwards to viſit the ſalt-marſhes of Khaaki, between the Moo-Bogdo and the ſandy deſert. Theſe marſhes are inundated when the ſaline rivulet Tzurkhuli Gaſhoon flows into them on the northern ſide, and torrents of rain from Moo-Bogdo increaſe the waters, which appear like a ſea. I propoſed to croſs the laſtmentioned rivulet, and advance to lake Elton, diſtant about ſixty verſts. My intentions, however, were fruſtrated; as the general conflagration of the ſteppe had devaſtated its ſurface, and rendered it impoſſible for us to procure food for our horſes in that inhoſpitable region.

Notwithſtanding this unpromiſing proſpect, I perſiſted in my plan, and actually ſet out on the 8th of July from the rivulet of Tzarevka, down the Volga. After travelling thirty-ſix verſts over the high, uniform, and dry ſteppe, I arrived at the rivulet Solanka. Six verſts farther, we croſſed what is called the Kurkina Balka, or Dſhilga, and continued our journey towards the low country of the Volga, till we arrived at a

* Vide my former Travels, Part iii. Page 532.

farm-

farm-houſe where we paſſed the night, and from which we ſaw the large Slobode, or village of Volodimerovka, diſtant about ten verſts.

On the 9th, we proceeded to the S. E., firſt over riſing, and then declining plains, towards the road leading from Dſhilga to the ſalt-lake of Bogdo. Before we reached this place, and immediately after paſſing the melon fields, planted by the inhabitants of Volodimerovka, in the lower parts of the ſteppe, we arrived at a tract, the ſurface of which had been entirely burnt, and all vegetation checked. The conflagration, which had happened about three weeks before our arrival, proceeded from the country which environs the lake Elton; the fire, as we ſoon learned to our great diſappointment, extended far beyond Mount Bogdo, and ſpread ſeveral hundred verſts into the country. We had conſequently to travel over a ſurface quite black from the fire, and on which the extreme intenſity of the ſolar heat fatigued both man and beaſt. I nevertheleſs was deſirous to proceed at leaſt as far as Mount Bogdo.

After a journey of about thirty verſts, we arrived at ſome very extenſive, flat, and low tracts, toward which the ſteppe on all ſides declined: here we obſerved excellent crops of hay, which had been ſaved from the conflagration, by the exertions and ingenuity of the inhabitants. This country has received from the Tartar Kalmuks the name of Kharakhoi, or black ſheep. The low grounds, when inundated in ſpring with ſnow-water, to the extent of five or ſix verſts, exhibit traces of a vaſt lake with numerous bays, as is manifeſt from the freſh-water ſhells ſcattered among the graſs. I obſerved water in one

of the pits, which was overgrown with ſedge, and farther in a narrow quagmire covered with willows. The *Gryllus Tataricus* flew about here with other inſects among the ſedgy graſs, and appeared to be indigenous to theſe environs. The moſt common meadow-plants were, the *Carduus Tataricus*, *Centaurea Picris*, *Inula dyſenterica*, *Gypſophila paniculata*, *Glicyrrhiza hirſuta* and *lævis*, *Lycopus pinnatifidus*, and the like.

From Kharakhoi the ſteppe again preſented a wave-like ſurface, and a long valley which extended in a ſouthern direction. The ſoil was dry, argillaceous, and moſtly covered with tuft-graſs which had begun to flouriſh after the conflagration. We were ſtill thirty-five verſts diſtant from the N. W. point of the ſaline lake Bogdo, or Baſkuntſhatſki, which was remarkable for the ſtreamlets of rain-water which flowed into it from the adjacent ſteppe. Previous to our arrival at the northern extremity of theſe defiles, we obſerved a pit in the form of a baſon, or almoſt conical, which appears to have originated from a ſinking of the ſoil; though neither gypſum nor other foſſils were diſcoverable there. We then proceeded ten verſts farther along the weſtern ſhore of the lake, over a clayey and ſaline dry ſteppe, which had been preſerved from the conflagration by the intervention of the water; and late in the evening we arrived at Mount Bogdo.

The ſurface of this mountain was almoſt entirely ſcorched; and as far as the eye could reach from its ſummit, nothing but a black ſteppe appeared. It was with ſome difficulty we could obtain the food ſo eſſentially neceſſary for our horſes, even on the ſteep part of the mountain which the fire had ſpared. Theſe dreary proſpects evinced the impracticability of proſecuting our journey

journey in theſe deſolate regions, which would not only have proved fruitleſs in botanical reſearches, but likewiſe dangerous to the traveller: and from theſe conſiderations the attempt was relinquiſhed.

On the 10th of May, I for the laſt time aſcended this ſingular rocky mountain, which riſes in the midſt of an immenſe plain; and while I admired the treaſure of excellent ſalt contained in this white glittering lake, I regretted that private intereſt ſhould be ſuffered to ſuppreſs this invaluable article, when a very inferior kind, intermingled with Epſom-ſalt, was uſed for curing fiſh. Let it ſuffice to obſerve, that ſome voluntary contractors, even among the merchants of Tſhernoiyarſk would readily engage to manufacture and deliver this ſalt at from five to ſeven kopeeks a pood, to the Imperial magazines of Tzaritzin, Dubovka, and Aſtrakhan, without requiring money in advance. But unfortunately this ſalt-lake has, by partial meaſurement, been included within the limits of a private manor; and thus it is in a great meaſure loſt to the community.

On the ſame day we returned to Kharakhoi; on the 11th we proceeded as far as the rivulet Tzarevka; on the 12th to Beſrodnaya where, after croſſing the Volga, we paſſed through Tzaritzin without ſtopping, and in the evening we arrived at Sarepta.

The whole month of July was devoted to the re-eſtabliſhment of my daughter's health. It was, however, high time to purſue my journey, and to bid a laſt adieu to the environs

of the Volga, which had twice in my life afforded me ſuch pleaſant and indelible botanical recreations. My intention was to make obſervations along the borders of the Caucaſus, and arrive before winter at the Tauridan Peninſula, in order to make myſelf acquainted with this newly conquered country. I was at firſt undetermined, whether I ſhould travel by the new road through the ſteppe of Kuma, directly to the fortreſs of Georgia near the Caucaſus, or reviſit Aſtrakhan, where I might expect to obtain many remarkable facts. Beſides, the latter road, in its whole extent, leads over the former bed of the Caſpian Sea; where, independent of other intereſting objects, I hoped to find a rich botanical harveſt of rare marine plants, which do not come to perfection till autumn. Theſe conſiderations at length induced me to prefer that road, eſpecially as the whole ſteppe of the Kuma had recently been conſumed by fire.

The road through this ſteppe, on which it was formerly propoſed to build villages, and eſtabliſh regular poſt ſtages, differs in ſome reſpects from that deſcribed in the third part of my former Travels, according to the journal of my late pupil SOKOLOF *. This road likewiſe runs along the bank of the Sarpa, leaves the high country to the right, and extends over

* NIKITA, or NICATA SOKOLOF, afterwards ſtudied at Straſburg, where he obtained the degree of Doctor of Medicine. He chiefly applied himſelf to Chemiſtry; and, on his return to his native country, he was firſt appointed Adjunct in that ſcience, and afterwards made an ordinary member of the Imperial Academy of Sciences, and Aulic Counſellor. He at length quitted the Academy, and died while in the capacity of Phyſician to the diſtrict of Kaluga. I have ſurvived and lamented almoſt every companion of my former Travels.

the

the brooks Soſtu, Tungutu, Ulaaſtu, and Alimatu. The meaſured diſtance, from the laſt rivulet to the Sarpa, is ſixty verſts. Here, however, the road leads over eminences, which are thirty-five fathoms above the level of the rivulet Alimatu; and it is continued in a ſouthern direction on a high country. After travelling twenty verſts, we found in a cavity a ſpring of good water, which flows into the Sarpa. Twenty-ſix verſts from this place, we arrived at another good ſpring, in the vicinity of the rivulet Khara-Sall, the water of which is ſomewhat brackiſh, and empties itſelf into the Don. The road extends along the Khara-Sall, and after a diſtance of forty-one verſts, croſſes the Yakſhibai-Sall, which unites with the aforementioned rivulet; and twenty-three verſts farther, it leads over the Dſhurak-Sall, a rivulet which is provided with a bridge, and likewiſe flows into the Khara-Sall. This road then runs along the left bank of the Khara-Sall, paſſes the mouth of the Sageſta-Sall, which, on the right, empties itſelf into the Dſhurak-Sall, and at length croſſes the Stſhutſhie, or pike-rivulet, which falls into the upper part of the Dſhurak-Sall. Here the high country preſents ridgy eminences, which are forty fathoms perpendicular above the level of the water: at their baſe, there is an uncommonly beautiful fountain of the pureſt water. It has ſeveral branches, which are called Kraſnoi Kolodes, or the clear fountains; and Kraſnye Rodniky, or the beautiful ſprings; being upwards of two hundred and ſixty verſts diſtant from Tzaritzin. Beyond this high ridge, which ſurrounds the principal ſprings of the ſmall river Sall, that flows into the Don, the high country, or ancient ſea-coaſt, ſuddenly declines towards the ſaline river Manytſh, and inſtead of the black ſoil, I again met

met with a ſaline ſteppe *. In this ſteppe, beyond the Manytſh, we arrived at ſprings called Tſherkaſkye Kopany, diſtant three hundred and ſeventy verſts from Tzaritzin. Twenty-four verſts farther, we reached the ſaline rivulet Kalaus, and forty-ſeven verſts thence we found, in a glen of the hilly country, two ſprings called Byelye Kolotzy, or the white ſprings: beyond this place we arrived at the Byeloi rutſhei, or the white brook, which is fifteen verſts diſtant from the Buivala, a rivulet that falls into the Kuma, and towards which the country gradually riſes, till the heights are from forty-five to fifty fathoms above the level of the water. Although theſe heights, from the low ſituation of the river Kuma, are inconſiderable when compared with thoſe of the river Sall, yet ſome calcareous ſtrata, which extend from the promontory of the Caucaſus, appear in different places along the eminences.

The diſtance from Tzaritzin to the old Madſhar is about five hundred and thirty-one verſts, by this road; a deſcription of which I have taken from a journal in my poſſeſſion, apparently contributing to aſcertain the ſituation of the old bed of the Caſpian Sea.

The high country, or Kraſh, as it is called by the inhabitants, emits the ſprings of the rivers that flow into the Sall, and a

* I requeſt the reader to compare what I have here ſaid, with the deſcription, of the more eaſtern road of the Kuma, mentioned in the third Part of my former Travels, pp. 586 and 587, according to the obſervations of the late Dr. Sokolof. The ſituation of the high country, and the ſaline ſoil near the ſource of the Manytſh, perfectly accord with what I have ſtated in the ſame paſſage, reſpecting the ancient extent of the Caſpian Sea, and its connection with that of Mœotia, by the valley of Manytſh. (Vide p. 78 and following of this volume.) The deſcription of my journey from Aſtrakhan to the banks of the Kuma, will tend ſtill farther to confirm theſe obſervations.

ſtill

ſtill greater number of rivers which fall into the Don. Theſe ſtreams form a confluence in the deep vallies of the ſixteen ſprings which empty themſelves into the Sarpa. Beſides the Karpovka, the following rivulets iſſue from this high country; namely, the Donſkaya-Tzaritza, the little brook Miſhkova, and the two rivulets Akſai, which have alſo received the names of Yeſſaulofskoi and Kurmoyarſkoi. It is certainly remarkable that a narrow tract of high country, which towards the Eaſt borders on a much lower dry ſteppe, while it lies conſiderably higher than the adjacent Volga, ſhould produce ſo many ſprings and rivulets which flow throughout the ſummer.

On the 4th of Auguſt, after having taken a moſt affectionate and grateful leave of my acquaintances in Sarepta, with acknowledgments for all the marks of friendſhip and politeneſs evinced towards me and my family, during a reſidence of more than three months, I returned down the Volga to Aſtrakhan. On the road to Tſhernoiyarſk, the ſteppe exhibited ſummer plants ſimilar to thoſe on the banks of the Sarpa. Farther down, where the ſoil in moſt places conſiſts of either a fine ſandy marl or a pure ſand, other plants gradually ſucceeded. Immediately below Tſhernoiyarſk I ſaw the *Polycnemum monandrum* * growing in great abundance. I had formerly obſerved this plant thinly ſcattered along the banks of the Volga.—In the ſandy country below Yenatævka, the *Tribulus terreſtris*, *Coriſpermum ſquarroſum* and *hyſſopifolium*, grew in ſuch numbers, that in

* Pallas's Travels, Part i. Supplement, pp. 483, and 94. Plate D. Fig. 1.

ſome

ſome places ſcarcely any other plant was to be ſeen.—Throughout the vicinity of Koſſikinſkoi Stanitz, the ſteppe is ſo completely overſpread with wormwood, that ſcarcely a blade of graſs is perceptible. There are two or three ſpecies of this plant, namely, the *Artemiſia Auſtriaca*, *maritima*, and *contra*, which communicate a bitter taſte to the cow's milk. But the beef of this place is of an exquiſite flavour, and much eſteemed at Aſtrakhan.

Towards Seroglaſofskoi, there are tracts entirely overgrown with the *Peganum Harmala;* a plant which indicates a nitrous ſoil conſiſting of ſandy marl. Other ſpots are productive of nothing but the *Anabaſis aphylla*, in large perennial tufts; and where the plains are more ſandy, the *Hedyſarum Alhagi* is in general the only plant. Beyond Samyangorodok the *Pallaſſia* begins to appear on the ſand-hills, as likewiſe on this ſide of the Volga. It grows, together with the buſhy *Artemiſia*, as far as Durnovka, and extends to the hills of drift-ſand which border on the river. It is ſurpriſing, that theſe large plants were overlooked by all the botaniſts who have viſited Aſtrakhan ſince the time of SCHOLLER. In the whole lower region of the Volga, where the ſurface of the ſteppe approaches the edge of the water, and imbibes more moiſture, I ſaw abundance of the *Meſſerſchmidia* in bloſſom, and ſome in ſeed. This is the predominant weed along the roads and banks, as well as in the gardens of Aſtrakhan, and particularly on old dunghills, where the *Phalæna pulchella* fed on it, and was the moſt common inſect.

Before we arrived at the branches of water flowing into the ſteppe, we came to Sharenoi Bugor, a ſaline, nitrous hillock,

which conſiſts of ſandy marl mixed with rubbiſh, and is ſituated cloſe to the Volga, about five verſts above Aſtrakhan. This hill appeared to me worthy of attention, on account of the rich efflorescence of nitre on its ſurface. It aſcends in a ridge from the ſteppe, and is higheſt on the ſide next the river. Two ſimilar but ſmaller ridges riſe in an almoſt parallel direction with the former, between the branches of water, on the banks of which melon gardens are cultivated.—The name Sharenoi Bugor ſeems to have been derived from the Ruſſian word Sharrit, to dig, or turn up the earth, and probably ſignifies a hillock irregularly broken up. It is often, however, through ignorance, called Sharenoi Bugor, that is, a roaſted or broiled hillock: the Tartars call it Kuyok-Kala. That this region has formerly been inhabited, may be rationally conjectured from the heaps of rubbiſh, the quantity of entire and broken human and animal bones, fragments of earthen veſſels, and the like, that are ſcattered around, though no traces of ſtone buildings are perceptible. The hill is about two verſts in circumference, and abounds with nitrous earth, even to its ſummit, being covered with ſuch plants as delight in a ſaline and nitrous ſoil, and are peculiar only to a few tracts of theſe regions. The moſt numerous and remarkable was the *Salſola vermiculata*; beſide which grew in abundance the *Nitraria*, and *Zygophyllum Fabago*, the decoction of which is held in eſteem by the Tartars and Greeks, for the cure of venereal diſeaſes; the *Peganum Harmala*, *Heliotropium Europæum*, *Salſola roſacea*, *baccata*, *altiſſima*, *kali*, *ſedoides*, and *hyſſopifolia*, the laſt of which grows here with reclining ſtalks. The *Gryllus oxycephalus* and *tataricus* flew in ſwarms among theſe plants. The

nitrous earth of this hill, which was formerly uſed, but has apparently not been mingled with the elixated earth, has again become very rich; though the looſe ſoil is only a congeries of ſand combined with a ſmall proportion of clay, and intermixed with calcareous or ſaline particles. On places where the earth had been removed, there was a rich efflorescence of nitre, ſo that twenty pounds weight taken from the ſurface of the ſoil, and lixiviated with a ſolution of pot-aſh, after the filtration and evaporation of the lixivium, gave three pounds and a half of pure cryſtals of nitre. The remaining mother-ley contained ſcarcely any thing but an alkaline ſalt, and in the filtrated liquor there was a ſmall portion of calcareous earth which weighed five ounces and a half.

On the 7th of Auguſt we reached Aſtrakhan, where I remained till the 26th, and employed the interval in making uſeful obſervations, and collecting remarkable facts relative to this city and its environs.

This ſemi-Aſiatic and important commercial town, which, next to St. Peterſburg and Moſco, ranks among the firſt cities of the Ruſſian Empire, has been ſo circumſtantially deſcribed by the younger GMELIN, who reſided here many years, that I can add very little new. It deſerves, however, to be remarked, that Aſtrakhan has lately been much improved in elegant houſes and public edifices built of ſtone. The moſt conſpicuous of theſe are two commercial halls for the reception and ſale of merchandize, one of which is appropriated to the Tartar merchants, and the other, which belongs to KOLOUSTOF the Armenian,

Armenian, is for the accommodation of the Perſians. Both theſe buildings are finiſhed in an elegant ſtyle of architecture. The high price of timber has induced the citizens of Aſtrakhan to erect their modern houſes either of brick, or a ſpecies of freeſtone, quarried above Tzaritzin, on the banks of the Volga.—This is certainly an embelliſhment to the place; though its inhabitants are much oppreſſed by a few wealthy individuals, who privately, and with impunity, monopolize the timber.

The annexed comparative table of the prices of wood will prove how rapidly its value has increaſed ſince the year 1786.

	Rubles.	Kopeeks.
In 1786, the fathom of birch-wood was ſold at		
from 1 ruble 25 kopeeks to - -	1	30
A beam of deal from 3 to 4 fathoms -	0	20
Planks of the ſame length - -	0	20
for roofing, of 5 fathoms - -	0	20
In 1792, the price of the fathom of birch-wood, was from 3 rubles 75 kopeeks to -	4	0
Beams of 3 fathoms - - -	0	70
of 4 fathoms - - -	0	80
Planks of 3 fathoms - - -	0	75
of 4 fathoms - - -	0	90
for roofing, of 4 fathoms - -	0	65
of 5 fathoms - -	0	85
In 1793, the fathom of birch-wood was from 6 rubles to - - -	8	0

	Rubles.	Kopeeks.
Beams of 3 fathoms - - -	1	10
of 4 fathoms - - -	1	20
of the beſt quality - -	1	50
Planks of 3 fathoms - - -	1.	20
of 4 fathoms - - -	1	30
for rooſing, of 4 fathoms -	0	80
of 5 fathoms - -	1	0

From the diſproportionate advance of theſe prices, it may be eaſily conjectured, that the dearneſs of this article did not ariſe from natural cauſes, nor from the increaſed expence of conveyance by the Kuma, from the environs of which Aſtrakhan is ſupplied with wood.—Indeed, its exorbitant riſe originated in the monopoly of ſpeculating individuals. In conſequence of this advanced price of timber, that of bricks has likewiſe been raiſed from five to twelve and thirteen rubles the thouſand; a higher price than is paid in the two capitals. Not leſs oppreſſive is the advance of workmen's wages, on account of the exorbitant price of bread. A common day-labourer, at Aſtrakhan, is paid from ſeventy to eighty kopeeks; and a carpenter, a ruble and a half a-day.

The annual variations in the riſe and fall of the Volga, are marked at Aſtrakhan by the Admiralty, as well as by the detachment of engineers. To enable the reader to compare the difference of the higheſt water, where the river divides itſelf into numerous large branches, with that formerly obſerved near Tzaritzin, where it is more confined, I ſhall give the higheſt

higheſt water-mark of the Volga, near Aſtrakhan, ſince the year 1774, for as many years as I have been able to obtain accurate information on that ſubject.

			Feet.	Inches.
The water roſe in	1774,	to	7	2
	1776,		5	8
	1777,		7	1
	1779,		6	11
	1786,		8	2
	1787,		6	7
	1788,		8	6
	1789,		6	9
	1790,		5	10
	1791,		6	2
	1792,		8	2

No mention is made in the above ſtatement of the accidental riſe of the waters, occaſioned by the ſea-winds from the S. and S. E. which are called here Morana Pogoda. It is only by the impulſe of theſe winds, that the water ſometimes inundates the low parts of the city; as the banks or mounds, which the late Governor BEKETOF left in the beſt ſtate of repair, are now much neglected, though they would require to be raiſed only to a moderate height. This may alſo be conſidered as a tolerably accurate account of the natural variations of water in the Caſpian Sea, ſince its increaſe and decreaſe, by the effect of the winds, are in a proportion nearly equal to that of the Volga.

The emoluments of the fiſheries in the branches of the Volga, and the not leſs productive ſhores of the Caſpian Sea, may

may be conſidered as the principal ſupport of the inhabitants of Aſtrakhan; for the preſent ſtate of the commerce with Perſia, in that city, rather contributes to its own impoveriſhment, and to the detriment of the Empire.—It would be difficult to find in the whole world, except on the banks of Newfoundland, a more productive fiſhery, or one more advantageous to the Government, than thoſe of the Volga and the Caſpian Sea united. During the faſts of the Greek Church, and the weekly faſt-days, which together amount to at leaſt one third of the year, this fiſhery affords the principal food to the whole European part of Ruſſia, and its populous capitals. Many thouſands of individuals are employed, and acquire wealth, either by fiſhing, and conveying the fiſh on rafts or ſledges, or by ſelling them in the markets. It will doubtleſs be conſidered curious and intereſting to ſhew, in one view, the number of large and ſmall fiſh taken in the lower branches of the Volga, near Aſtrakhan, and the inlets of the Caſpian Sea. Beſides theſe, vaſt numbers are caught in all other parts of the Volga, as far as the Okka, and likewiſe in the river Ural*, or Yaik. I can ſafely affirm, that the round numbers of the ſubjoined liſt are rather moderate than exaggerated. This account has been tranſcribed from the joint returns of the principal proprietors of the fiſheries, and thoſe of the public brokers at Aſtrakhan, who are obliged to certify the exports of fiſh, by permits. Moreover, the medium of the regiſter of fiſh taken during four years has been adopted, and only the loweſt prices have been mentioned.

* Vide the firſt part of my Travels, p. 282, and following.

I. *Fiſhery*

I. *Fiſhery of Belugen, or the Great Sturgeon.*

In the weirs called Utſhugi, belonging to the city, are taken in ſpring, autumn, and winter -	15,000
In the fiſheries of the late Count, and preſent Prince BESBORODKO, near the Buſan -	8,000
In the waters belonging to the Archbiſhop -	7,000
In the diſtrict of the waters of Bibikof -	6,000
In that of Beketof - - - -	7,000
In the ſhare belonging to Vſevolodſk - -	6,500
In the diſtrict of Skrypitzyn - -	4,000
In the fiſheries of the inferior proprietors, ſuch as Vaſſili Popof, Irvan Beketof, Babaef, and others - - - - -	40,000
In the Perſian fiſhery of Sallian, belonging to Major Varvatzi, in partnerſhip with the merchants Telepnef and Tſhurekof - -	10,000
Thus the total amount of the great ſturgeon is -	103,500

	Rubles.
By reckoning each fiſh at only two rubles and a half, the price of this number will be -	258,750
A thouſand ſturgeons produce about ſeven pood and a half of iſinglaſs, ſo that the beforementioned number would afford ſeven hundred and ſeventy-ſix pood; which, valued at ſixty rubles a pood, being the preſent price of the inferior kind of that article, would amount to	46,560

The

	Rubles.
The roe, or caviar, of one thouſand ſturgeons weighs one hundred pood, or four thouſand pounds weight; conſequently the whole would produce ten thouſand three hundred and fifty pood, at three rubles and a half the pood -	36,225
Product of the fiſheries of the great ſturgeon -	341,535

II. *Fiſhery of the Little Sturgeon.*

In the weirs of the city are taken in ſpring, autumn, and winter - -	30,000
In the waters of the Buſan - -	9,000
In thoſe of the Archbiſhop - -	4,000
In thoſe of Vſevolodſk - - -	6,000
In thoſe of Beketof - - -	10,000
In thoſe of Skrypitzyn - - -	7,000
In thoſe of Bibikof - - -	6,000
In the fiſheries of the inferior proprietors, collectively - - - -	70,000
At Sallian, in Perſia - - -	80,000
In the mouth of the river Siſidrud, in Gilan	40,000
From the Gyurgen, at Aſtrabat - -	40,000
Thus the amount of the ſmall ſturgeon is -	302,000

	Rubles.
By reckoning theſe ſturgeons at one ruble thirty kopeeks a-piece, the produce will be -	392,600

One

	Rubles.
One thouſand ſmall ſturgeons produce two pood and an half of the beſt iſinglaſs; conſequently the amount of the abovementioned number will be ſeven hundred and fifty-five pood of that article, which, valued at only fifty-five rubles a pood, will produce - -	41,525
One thouſand of theſe fiſh yield only ſixty pood of roe, or caviare, becauſe many of them do not contain it; hence the whole produce is eighteen thouſand one hundred and twenty pood, which, at only three rubles and an half, amounts to - - -	63,420
Produce of the fiſhery of the ſmall ſturgeon -	497,545

III. *Fiſhery of the Sevrugas* *.

In ſpring, about ſeven hundred fiſhing ſmacks, or lotke, and in autumn three hundred are employed in the fiſhery of the Sevrugas, in the river Yemba, and on the coaſt of Trukhmen. Computing theſe barks at one thouſand, each containing ſeven hundred fiſh of different ſizes, the amount will be - -	700,000
From the city weirs are obtained annually -	50,000
The branches of the Buſan yield - -	70,000
The waters of the Archbiſhop - -	30,000

* *Acipenſer ſtellatus*. PALLAS's Travels, Part i. Supplement, page 460. n. 20.

Thoſe of Bibikof - - -	30,000
Thoſe of Beketof - - -	40,000
The waters of Vſevolodſk - -	35,000
Thoſe of Skrypitzyn - - -	30,000
From the ſmall fiſheries in the waters of the city, as well as thoſe of the Kozaks, - -	100,000
At Sallian, in Perſia, the number is computed at	200,000
At Tſhetſheni - - - -	60,000
Total of Sevrugas - - -	1,345,000

	Rubles.
Calculating the price of each ſevruga at forty kopeeks, the produce of that ſpecies of fiſh alone will be - - -	538,000
One thouſand ſevrugas produce one pood and a quarter of iſinglaſs; making in the whole one thouſand ſix hundred and eighty-one pood and a quarter, which, if valued at only ſixty rubles the pood, will amount to -	100,875
One thouſand ſevrugas produce ſixty pood of the beſt caviare; the whole, therefore, will be eighty thouſand ſeven hundred pood, which, at only three rubles and an half the pood, amounts to - - -	282,450
Produce of the ſevrugas - -	921,325

The whole value of the ſturgeons of different kinds, caught in the waters of Aſtrakhan and the Caſpian Sea, amounts to the

the annual ſum of one million ſeven hundred and ſixty thouſand, four hundred and five rubles, according to the average price. It may hence be concluded, in what incalculable numbers theſe large fiſh, ſo rich in caviare, are continually propagated in the depths of the Caſpian Sea. They proceed in ſhoals to the mouths, and a conſiderable way up the current of the rivers, without the leaſt apparent diminution of their numbers. This ſuperabundance may be more clearly conceived from the account of eye-witneſſes, reſpecting the fiſhery of Sallian, in Perſia. As the Perſians eat no ſturgeon, the beforementioned ſpeculators in fiſh have rented the fiſhery of that river from the Khan of Derbent, SHIKH ALI, a ſon of FETH ALI KHAN, at a certain ſum, which of late years has been raiſed to twenty-five thouſand rubles. In the ſeaſon of their migration there are ſometimes, in one day, fifteen thouſand ſturgeons taken with the hook, at the weirs formed acroſs the water; nay, it is ſtill more remarkable, that if the fiſhermen are accidentally prevented from working during a ſingle day, the fiſh accumulate in ſuch numbers at the weir, as to fill the whole channel, inſomuch that thoſe which are uppermoſt appear with their backs above water, in a river not leſs than four arſhines, or twenty-eight Engliſh feet deep, and ſixty fathoms wide. The Perſian fiſhery, which has been eſtabliſhed by the proprietors only a few years ago, and which, together with the rent, amounts to an expence of 80,000 rubles, is ſaid to produce annually upwards of 200,000 rubles. It might be ſtill more lucrative, if the injudicious fiſhermen would preſerve the great number of fiſh, inſtead of throwing

them into the ſea as uſeleſs, after having collected their roes and air-bladders.

Independent of the abovementioned produce of the ſturgeon-fiſheries, the ſmaller ſpecies of fiſh, ſuch as the carp of Sſafani, the pike or Sudaki, and ſhads or *Silurus*, in Ruſſian Somi, caught in theſe fiſheries, may be valued at half a million of rubles. This ſum is produced partly by the ſale of the fiſh, and partly by the price of their fat. Beſides, the number of ſeals taken in the Caſpian Sea ought to be included among the productive branches of induſtry.

The moſt valuable production of the ſturgeons is the iſinglaſs prepared from their air-bladders. This article is principally exported from St. Peterſburg to England, where it is uſed in large quantities, in the beer and porter breweries. The Engliſh ſupply the Spaniards, Portugueſe, Dutch, and French, with this commodity for clarifying their wines. According to the liſt of exportations printed by the Engliſh Factory at St. Peterſburg, there have been exported in Britiſh veſſels, from 1753 to 1758, between one and two thouſand pood of iſinglaſs; from 1769 to 1786, from two to three thouſand; in late years uſually upwards of four thouſand; and in 1788, even ſix thouſand eight hundred and fifty pood of that article. The exportation to other countries has alſo amounted, within theſe few years, to above one thouſand pood. The large and almoſt incredible demand has, at the ſame time, tended to increaſe the price of the different qualities of this commodity at Aſtrakhan itſelf; and on the exchange of St. Peterſburg, where iſinglaſs of the beſt quality, ſo late as the year 1778, did not

not exceed the price of thirty-ſix rubles a pood, it has lately been advanced to ninety rubles.

No caviare was exported in Engliſh veſſels till the year 1781; and only twenty-ſix pood of that commodity were exported in 1782; but the increaſe of this trade was ſo rapid, that in the following year one thouſand one hundred and fifty-one pood, in 1784 one thouſand ſix hundred and twelve, in the two ſubſequent years above one thouſand, in 1787 nearly one thouſand ſix hundred, in 1788 four thouſand, and in 1789 eleven thouſand two hundred and fifty-four pood were exported; but in 1790 only twenty-five pood, and in 1792 three thouſand ſeven hundred and eighty-one pood. The exportation to Italy has alſo amounted to upwards of ten thouſand pood, within the laſtmentioned years, excluſive of about three thouſand pood ſent to other countries; and a ſtill larger quantity through the ports of the Black Sea and the Sea of Azov.

The price of iſinglaſs of the worſt quality has within the laſt years been above forty rubles, and that of the beſt quality upwards of ninety rubles the pood, at St. Peterſburg; while the price of caviare has advanced to above five rubles the pood. From this ſtatement we may conclude, of what importance the fiſheries of Aſtrakhan are to the commercial intereſts of the Ruſſian Empire.

The abovementioned remarks, with reſpect to the advantageous inland trade of Aſtrakhan, cannot be applied to its foreign commerce, particularly that with Perſia, which is far from

from being profitable to Ruſſia. This aſſertion will be verified by the following account:

We pay annually to Perſia a heavy tribute for the raw ſilk uſed in our manufactories; while this article might be produced in large quantities, in the ſouthern provinces. It may be computed, upon an average, that there are annually imported into Ruſſia eight thouſand pood of ſilk, chiefly from Gilan in Perſia. Of this ſilk there are frequently between ſix and ſeven thouſand pood of the beſt quality, which is purchaſed at two hundred rubles, and the inferior ſort at one hundred rubles the pood. The price of the raw ſilk of Shamaki varies, according to its quality, from one hundred and thirty-five, to one hundred and ſeventy rubles a pood. Though the imported ſilk pays no duty, yet its quantity and value is entered at much leſs than the real amount. As it will appear from the following inveſtigation, that the imports exceed our exports, and as the ſilk is purchaſed at a lower price for ready money, conſequently the greateſt part of our ſpecie is ſent out of the country for this commodity, and for ever loſt to the Empire. The ſum thus ſecretly and annually exported to Perſia for merchandize, is not leſs than one million of rubles; which is paid partly in ducats and partly in rubles. It is, however, ſtill greater, if we ſuperadd the rents paid for the fiſheries in Perſia.

It were to be wiſhed, that the Armenians and Georgians, or Gruſines, who are ſettled at Aſtrakhan, and on the banks of the Terek, would cultivate ſilk with more aſſiduity. They ought to be ſupported and encouraged by every poſſible means, eſpecially by premiums and rewards, which certainly would not be

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loſt to the State. The Georgians would readily emigrate in numbers to our frontiers, if Government would facilitate their ſettlement, by advancing them ſmall ſums of money for a certain term, and granting them good lands, particularly in Taurida. By theſe means the Southern provinces could be peopled with active and peaceable inhabitants, who might be employed in cultivating the vine, and raiſing that uſeful inſect, the ſilk-worm.

The importation of raw and ſpun cotton, and madder, is not leſs detrimental to the circulation of ſpecie in Ruſſia. As theſe articles pay twenty-five *per cent.* duty, the cuſtom-houſe regiſters are ſtill more inaccurate with reſpect to their importation; becauſe, from theſe it would appear, that there are annually imported only from three to ſix thouſand pood of cotton yarn *, and about one thouſand pood of cotton wool. But it is a truth well aſcertained by all the merchants of Aſtrakhan, that there are twenty thouſand pood of cotton annually imported from Boukharia, by the ſpring traders bound for Mankiſhlak. Only one eighth part of this quantity is Boukharian and Maſanderan cotton, conſequently the greateſt part of it is imported in yarn. The wages for ſpinning cotton yarn, compared with the price of the raw material, are in the

* The entries in the regiſters of the cuſtom-houſe for the year 1789 are, of ſpun cotton five thouſand and ninety-five, raw, one thouſand one hundred and ſeventy-four pood;—for the year 1790, five thouſand five hundred and nine pood of ſpun cotton, two thouſand ſeven hundred raw;—for the year 1791, ſpun, three thouſand five hundred and eighty-one, raw, one thouſand three hundred and two;—in 1792, ſpun, ſix thouſand two hundred and fifty-ſeven, raw, 474;—in 1793, Perſian cotton yarn, eight hundred and ſix, raw, four pood.—From Boukharia, by the port of Mankiſhlak, two thouſand three hundred and forty-one pood, ſpun, two hundred and ten raw;—from Khivan, with the caravans by Gyuryef, thirty-ſix pood.

proportion

proportion of thirty-five to eleven. In this reſpect, we cannot eſtimate too highly the obligation we are under to the colony of Sarepta, which has cultivated great quantities of cotton wool, and employed the German coloniſts on the banks of the Volga, in ſpinning cotton yarn. Thus the females in thoſe colonies are furniſhed with proper employment, their induſtry is encouraged, and the money remains in the country. The coloniſts manufacture principally the cotton of Maſanderan, which, though of a more yellow colour, is ſofter and more tenacious in ſpinning than any other ſpecies, and is purchaſed at thirteen rubles the pood; while the cotton yarn of Boukharia is bought, according to its quality, at from thirty to ſixty rubles a pood. The Nagay women at Aſtrakhan ſpin annually about one hundred pood of much finer and better twiſted cotton yarn, which ſells at from eighty to one hundred rubles the pood. Among the Boukharian cotton yarn, there is ſometimes a light brown kind, from which the undyed nankeens are manufactured; and which produces the beſt effect in embroideries on muſlin. I have been aſſured that the plant of this ſpecies of cotton has a blue flower.

It appears from the regiſters, that the madder annually imported into Ruſſia, amounts to between four and ſeven thouſand pood *. But all the reſpectable merchants of Aſtrakhan agree,

* According to the cuſtom-houſe books for the year 1789, three thouſand eight hundred and ſixty-two pood were imported; in 1790, ſix thouſand four hundred and ſixty-two pood; in 1791, four thouſand nine hundred and ninety-two pood; in 1792, ſeven thouſand five hundred and fifty-nine pood; in 1793, ſix thouſand ſeven hundred and ſixty-nine pood.—Independent of theſe quantities, the regiſter of the tolls eſtabliſhed near Kiſlar, for the year 1792, contains the entry of two thouſand eight hundred and ſixty-eight pood, which proves that here likewiſe a much larger quantity is imported.

that

that there are imported annually from ten to fifteen thouſand pood, excluſive of ten thouſand pood obtained by the way of Kiſlar; the price of which varies, according to its quality, from eleven to fourteen rubles a pood. I have even been aſſured, that in the year 1793, there were imported at Aſtrakhan five cargoes of this article, each containing five thouſand pood, which would induce me to believe, that the export trade was more conſiderable in that year than at any former period.—It is certain, however, that the two commodities, cotton and madder, contribute much to render the balance of trade diſadvantageous to Aſtrakhan. If we ſuperadd eight thouſand pood, and upwards, of raw cotton yearly imported by the Baltic, and that we pay for different manufactures of cotton, to foreigners, upwards of a million and a half of rubles, the neceſſity of encouraging the culture of this uſeful plant, as well as every kind of manufacture of cotton, will be ſufficiently obvious; for it is a truth well aſcertained, that ſcarcely one half of this article is diſpoſed of by barter in the markets of Siberia, to the Chineſe and Boukharians. On the other hand it is alſo certain, that the cultivation of cotton bids fair to proſper on the banks of the river Terek, as well as in the Tauridan peninſula.

To theſe principal articles of importation may be added a fourth; namely, the galls, of which, in ſome years, we receive upwards of three thouſand pood: the loweſt price is twelve rubles the pood of forty pounds. Our oak-trees ſeldom produce this excreſcence, and we have but few oak foreſts in the Southern climates. A ſmall quantity of galls may be collected in Taurida; but it would be inſufficient to render the importation of that commodity unneceſſary. This article is indeed

indiſpenſable to our tanners and dyers, till we diſcover an indigenous production which poſſeſſes ſimilar properties for dying black. Perhaps the importation of galls might be conſiderably diminiſhed by the ſubſtitution of the *Andromedæ*, in Ruſſian, Bolotniki, which grow abundantly in the northern moraſſes, and the ſuperiority of which, in dying ſilk of a black colour, has long been admitted.

Independent of the more conſiderable objects of importation, it is probable that the amount of manufactured and various other goods annually received from Perſia may not exceed one hundred thouſand rubles.—It muſt indeed be confeſſed, that all the Perſian ſtuffs, ſuch as ſilk, mixed ſilk, and cotton, are infinitely more durable and beautiful than thoſe of Turkey; beſides which they are purchaſed remarkably cheap, excepting the ſmall quantity of Indian goods we obtain by the way of Perſia; ſuch as the fine chintzes, called Kalenkor, and the excellent undyed cotton cloth, called Maderpok. Among the ſtuffs of Perſia, thoſe of ſilk and half ſilk, in ſtripes of various colours, called Kutni and Aladſhi; thoſe interwoven with gold, or Iſarbati and Dibi; other ſtuffs diſtinguiſhed by the names of Kanavati, Kitai, and Muckoyari, beſides the Burmets, Baſmi, Baſi, Aladſhi, and others manufactured of cotton, are the beſt and in moſt general demand. We receive the very inferior cotton ſtuffs worn by the common people, both from Boukharia and Perſia. The fine and valuable woollen ſhawls of various colours, which are held in ſuch high eſtimation by the European ladies, and are worn round the head and waiſt in Perſia, are imported, though in ſmall quantities only, from Tybet and Kyſhmir, or Kaſhmir. But we purchaſe ſhawls at much lower prices

prices from Perſia, than after they have paſſed through the third hand from Turkey. Mr. ALEXANDER AGATHI, director of the ſchool at Aſtrakhan, who has travelled to Kyſhmir, informed me that theſe ſhawls are manufactured not only of the fineſt goat's wool, obtained by combing the animal, but likewiſe from the ſilky wool of the ſheep of Kerman and Kyſhmir, which, in luſtre and beauty, ſurpaſſes the whiteſt ſilk. In ſhort, the white, and next to them the ſtriped ſhawls of ſeven colours, are conſidered as the moſt valuable.

We receive few commodities of any importance from Perſia, except the beforementioned. The following enumeration will compriſe almoſt the whole of the other articles of commerce worthy of notice, which we import from that country. A few otter-ſkins and other furs; lamb ſkins brought chiefly from Boukharia; a ſmall quantity of *Galbanum*, *Gum ammoniac*, ſaffron, and *Aſſafœtida*, which laſt coſts from three to ſeven rubles the pood; walnuts, a thouſand of which are ſold for leſs than one ruble; ſome confections, and a few dried fruits, ſuch as dates, Kyſhmiſh, or ſmall raiſins without ſtones; large raiſins; piſtachio nuts; almonds; Sheptala, or dried peaches; prunes; Alitſha, or ſmall tartiſh prunes; freſh and dried truffles of Baku, garlic, and rice. I had almoſt omitted to mention the Oriental Turkoiſes, which are ſold in great numbers, and at low prices, by the merchants of Aſtrakhan, but are ſeldom of a conſiderable ſize, or without ſome defect. They are moſtly worn in rings, and clumſily ſet in tin. I purchaſed a ſingle Turkois for two hundred and fifty rubles; it was of a ſhort conic form, and upwards of an inch in diameter. This ſtone would have been of great value, had it been free from a defect

in the colour, near its edge. The Indians who reſide here alſo occaſionally deal in emeralds and rubies.

With reſpect to our exports, we have made but very ſlow advances. Beſides, the commodities fit for our commercial intercourſe with Perſia are ſuch as we are obliged to procure from foreigners, and conſequently cannot be computed in the balance of trade. The moſt conſiderable and beneficial export, for ſome time paſt, has been cochineal. One thouſand pood of this merchandize are annually exported from Aſtrakhan: it may be eſtimated at three hundred rubles a pood. The Armenian merchant NIKITA KOLOUSTOF, alone, formerly exported in one year eight hundred pood of this valuable dying material. Indigo has likewiſe been a good article of commerce; but ſince the deſpots of Avganie are in undiſturbed poſſeſſion of Kyſhmir, Multan, and other Indian provinces, it is brought in abundance from Lahor to Perſia, and thence even to Aſtrakhan, where it is ſold at from ſixty to eighty rubles the pood. Though it is apparently inferior to the beſt, and reſembles only the middling kind of Armenian indigo, yet, in the opinion of experienced dyers, it is of a ſuperior quality, and imparts a much ſtronger colour, if attention be paid to keeping it a longer time in the vats. The foreign velvets, ſattins, and woollen cloth, as alſo pluſh and linen of different kinds, are, next to thoſe abovementioned, the moſt conſiderable articles exported. —In cloths, the exportation may amount to one hundred and fifty thouſand rubles; in velvet, from fifteen to twenty thouſand rubles; and the value of all the remaining articles together does not amount to forty thouſand rubles. Perhaps the Ruſſian leather, or Yukhten, may produce from ten to fifteen thouſand rubles

rubles of this balance. Sugars of different kinds are exported to the value of twenty thouſand rubles. The amount of brocades, camblets, taffetas, paper, ſmall looking-glaſſes, and ſeveral articles of iron and copper, as well as ſpices exported from Aſtrakhan, is altogether leſs than that of the laſtmentioned merchandize. Pig and bar iron would be a very lucrative article of commerce, eſpecially as it is a native production; but HERACLIUS, the Tzar of Georgia, having in the year 1789 obtained permiſſion for his Armenian factor TARUMOF, to export, during four ſucceſſive years, forty thouſand pood of iron free from duty, the merchants, on account of the high duty of ſixty kopeeks a pood, were unable to trade in this commodity with any advantage. As therefore the balance of trade with Perſia is againſt Ruſſia, it is worthy of inquiry, in what manner our commercial intercourſe could be rendered, if not profitable, at leaſt leſs detrimental to the intereſts of the Empire; for, in my opinion, we poſſeſs the means of effecting that deſirable purpoſe.

At preſent, all exported foreign merchandize are exempt from duty, and thoſe only ſubject to impoſts which are produced in the Empire, and which generally are but of ſmall value; ſo that this branch of the revenue does not produce much above ten thouſand rubles annually. A ſum ſo inconſiderable might be readily ſacrificed by Government to the encouragement of commerce; yet this ſacrifice would be inſufficient, though the exportation of iron ſhould be granted duty free, and no monopoly ſimilar to that beforementioned ſhould be allowed to any individual. Our merchants of Aſtrakhan are in competition with the Engliſh and French factories, who

who ſupply the Perſians with every article of European manufacture in abundance, and at the moſt reaſonable prices. — Although the land-carriage of goods by Aleppo is expenſive, yet the duty is proportionally leſs, being charged at the rate of three *per cent.* at Smyrna, and ten *per cent.* at Erzerum. On the contrary, the Ruſſian merchant, beſides the expence of freight and land-carriage, together with the loſs to which he is liable from the fluctuating courſe of exchange, is obliged to pay a duty of twenty-five *per cent.* on all foreign goods imported; and theſe form the principal part of the exports. If, therefore, he wiſhes to rival the other European merchants in Perſia, whence they obtain the beſt ſilk, or to engroſs this trade by lower prices, that object can only be accompliſhed by a drawback on the duties paid in the ſea-ports of the Baltic. Similar judicious meaſures are frequently and ſucceſsfully adopted in England. Thus the Ruſſian merchant would be enabled to ſell foreign goods cheaper to the Perſians, to alienate them from the other European factors, and gradually bring the whole ſilk trade of Perſia to Aſtrakhan. This would be an object the more deſirable, as the Engliſh obtain their beſt ſilk from Perſia; but if the abovementioned plan were adopted, they would be obliged to purchaſe it in our markets.

It is however ſcarcely to be expected, that during the free trade, our merchants, who conſiſt of ſo many different nations, will co-operate to accompliſh this patriotic purpoſe, and deal with integrity towards each other, as well as to the general intereſt of Ruſſian commerce. They will appropriate the drawback to their own private intereſt, and be unconcerned whether this remiſſion of duty may be of any future advantage. Hence

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it would be neceſſary to give this trade excluſively to a chartered Company of merchants, poſſeſſing experience and integrity, and to be regulated by Directors ſubject to the controul of the Commercial College. The fund of this inſtitution might be raiſed by moderate ſhares, ſo as to admit the inferior merchants to a participation of the profits; while the annual election of the Directors might be decided by a majority of votes. This Company, in which foreign merchants may alſo be incorporated, ſhould have permiſſion to carry on the excluſive trade to Perſia. They ſhould not be entitled to export foreign merchandize from Aſtrakhan, but ſhould be obliged to ſell ſuch goods by public auction; while the Directors ought to render an annual account to the Company, reſpecting their tranſactions and profits. Such an inſtitution ought to be protected againſt every kind of oppreſſion, both domeſtic and foreign; and all veſſels of the Crown, as well as of private traders, ſhould be prohibited from interfering with their trade. Among other privileges, this Company might be permitted to eſtabliſh a number of induſtrious Perſian emigrants for the culture of ſilk, madder, and other profitable branches of commerce, in colonies either in the government of Aſtrakhan, on the banks of the Terek, or on the deſert iſlands of the Caſpian Sea. The Iſle of Ronas would perhaps be preferable in this reſpect; as probably the Maſanderan ſugar-cane, and the indigo of Lahor might be ſucceſsfully cultivated there. Permiſſion might be given to this Company to extend their trade to India, Kyſhmir, and Tybet, by caravans, when at ſome future period it ſhould acquire ſufficient ſtability. We might thus obtain, by immediate intercourſe, the beautiful and coſtly wool of Kerman and Kyſhmir; the

the rhubarb and muſk of Tybet; the manufactured goods, indigo, diamonds, and ſpices of India: while a part of theſe commodities might be diſpoſed of to advantage in Perſia, on their paſſage from thoſe countries. With ſimilar profit we could carry on this trade with cochineal, good lackers, velvet, ſteel, and iron, in the heart of India; and the Company would conſequently have leſs occaſion to export caſh, which at preſent it is impoſſible to prevent among the numerous ſmugglers. This great object could be the more effectually attained, as the cheaper purchaſe of merchandize in the groſs, and the drawback received from the Crown, would enable the Company to effect a very advantageous barter. Such a chartered body might alſo profitably undertake the exportation of ſoda, or foſſil alkali, eſpecially if it were conveyed the neareſt way to Azov, and thence ſhipped for foreign markets. The aſhes of the marine plants, which grow in abundance on the extenſive ſteppes round the Caſpian Sea, would furniſh a material for the manufacture of ſoda in large quantities. I have often recommended the proſecution of this branch of trade, and even lately urged its importance in the Tranſactions of the Free Economical Society of St. Peterſburg: I was alſo the firſt who ſuggeſted a plain and eaſy method to aſcertain by a candle, and from the melted aſhes, thoſe marine plants which yield ſoda in the greateſt quantity, and of the beſt quality.

The marine of the Caſpian Sea at preſent conſiſts of two frigates of twelve guns each, two cutters, and a tranſport. There are beſides fifty-ſix merchant veſſels, *viz.* a pink, a tranſport,

tranſport, five galliots of about thirty laſts burthen each, and forty-eight ſchooners from ten to thirty or forty, and one of ſixty laſts. Beſides theſe, there are one hundred and thirty-eight roſhiven, or flat-bottomed veſſels, employed in fiſhing and taking ſeals; as alſo in the Mankiſhlak* trade with the Trukhmenes and Boukharians. If the trade of the Caſpian Sea ſhould at a future period become more flouriſhing, the number of veſſels, which could be built at a low price in the government of Kaſan, muſt neceſſarily be increaſed.

I did not think my time would be ill ſpent, during my ſtay at Aſtrakhan, by inquiring into the means employed in the Eaſt for dying madder red; eſpecially as I had an opportunity of obtaining accurate information on the ſubject by a friend, who had advanced money for the eſtabliſhment of a work for dying cotton of that colour. I ſhall here communicate my remarks, which may ſerve to correct a former deſcription, printed in the Journal of St. Peterſburg, and the periodical work, called in German, "*Nordiſche Beyträge*," or Northern Contributions. This account is the firſt that has appeared in print, relative to an art that has formerly been kept a great ſecret.

A quantity of cotton yarn is uſually prepared for dying on a Saturday, in the following manner: It is firſt ſoaked in the fat of fiſh, previouſly ſaturated with a ſolution of the ſalt of ſoda

* During the late Perſian war this ſquadron was conſiderably increaſed.

called Kalakar; in this ſtate it is left in a heap till the ſucceeding Monday, during which time it grows remarkably hot.

On the Monday the yarn is rinſed, dried, and again immerſed in this fat emulſion; and on Tueſday that proceſs is repeated a third time, after which it is hung up to dry. The four following days of the week it is repeatedly ſteeped in new lixivia of ſimple Kalakar.

Having undergone theſe proceſſes, the yarn receives the firſt olive colour from the leaves of the Belge, or the *Cotinus* of Linnæus. In order to dye ten pood of yarn, three pood and thirty pounds of the leaves of the Belge, that is, fifteen pounds of leaves to each pood of yarn, are boiled in large kettles containing from forty to forty-three Ruſſian Vedros, or eimers *, of water. This decoction is ſiltered through ſieves, while the kettles are cleanſed for the reception of the puriſied liquor, in which a pood of alum is diſſolved. Into this liquid dye the yarn is dipt by ſkeins, in ſmall cups or pots, then hung up to dry, afterwards waſhed, and again dried.

The yarn being thus prepared, the workmen then proceed to give it a red dye. To every pood of yarn an equal quantity, or ſomewhat leſs, of ground madder, which has previouſly been mixed with half a Ruſſian vedro, or about thirteen pints Engliſh meaſure of blood, is put into every kettle. After boiling this dye the yarn is immerſed in the preparation, and ſuffered to boil up with the liquor.

When thus perfectly dyed, it is dried and afterwards placed in pots containing alkaline water, in which it is completely

* See the explanation of this meaſure, p. 40.

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immerſed and allowed to ſimmer, while the liquor, which boils over and runs off by a ſmall gutter affixed to the edge of the veſſel, is continually replaced by a freſh ſolution of the ſoda.

After the yarn has been thus boiled, again dried and waſhed, this complicated operation is generally finiſhed in three weeks. It is affirmed that the Turks conclude their proceſs by again ſoaking the dyed yarn in oil, to give it a more beautiful colour and luſtre, as well as with a view to increaſe its weight: in this ſtate it is preſſed, and allowed to dry. They commonly uſe the oil of olives inſtead of the fat of fiſh; but in general every kind of oil or liquid fat, which forms a ſaponaceous maſs with the ſolution of ſoda, is proper for that purpoſe.

The price of dying materials always varies according to the ſtate of the market, and other circumſtances; and it requires a large capital to ſupport ſuch an eſtabliſhment. Of the madder obtained from Perſia and the environs of the Terek, that with ſmall roots is preferred; it is ſold, according to its quality, from eleven to fourteen rubles the pood, and afterwards reduced to powder. The bruiſed leaves and ſtalks of the Belge, or *Cotinus*, are brought from Kiſlar, and coſt from eighty to one hundred kopeeks, or one ruble the pood. Unleſs the cotton yarn be previouſly dyed with theſe leaves, or the galls which were formerly uſed, it will acquire only a pale and not a durable red. Soda of a good quality alſo comes from Kiſlar, and varies in price from thirty to one hundred kopecks a pood. The beſt ſort, which is dry and hard as a ſtone, was at this time ſold at only thirty kopeeks. On being diſſolved, all the particles of carbon with which it is mixed are precipitated, and by ſkim-

ming the ſolution becomes perfectly clarified: the ſediment is thrown away as uſeleſs. A pood of ſoda is diſſolved in a vat of forty vedros, or about one hundred and thirty Engliſh gallons.

For every pood of cotton yarn the dyer is paid from twenty-five to thirty-ſix rubles, including materials and the price of dying: he returns from three to ſix pounds overplus to each pood; becauſe the yarn has acquired ſo much additional weight from the colour.

To each pood of yarn are uſed four pounds of alum, fifteen pounds of *Cotinus* leaves, fifty-eight pounds of the fat of fiſh, one pood of ſoda, and one pood of madder. Two boilers for the decoction of the Belge leaves and madder, both heated by the ſame fire, and four large pans for the ſoda, are ſufficient to dye five hundred pood of yarn in one year. It muſt, however, be remarked, that the dying proceſs cannot be continued in winter, and it is likewiſe interrupted by rainy weather.

The culture of the vine, introduced at Aſtrakhan in the reign of Peter the Great, is in a progreſſive ſtate of improvement, though the climate and ſoil are rather unfavourable. The vine is at preſent not cultivated merely for the freſh grapes, but likewiſe for the production of wine. The grapes are packed with red millet in ſmall caſks, which are ſuſpended by chains in wooden caſes, and thus conveyed to the Court and to the capitals, where they are ſold to great advantage. The vineyards, formerly cultivated at the expence of the Crown, have been ſold by public auction; and hence, as well as by the important

portant plantation of the late Governor of Aſtrakhan, and afterwards Senator, NIKITA AFANASSIEVITCH BEKETOF, the cultivation of the vine has received new vigour.

On the 21ſt of Auguſt, I accompanied the preſent Governor, Major General SKARSHINSKY, on a viſit to the new eſtabliſhment in the iſle of Tſherepakha, which is incloſed by banks. In our excurſion thither, we paſſed along the Kutum, an arm of the Volga, which branches from that river near Aſtrakhan, and is provided with a bridge. This iſle, which belongs to M. DE BEKETOF, is formed by the new Kutum, a ſmall collateral arm called Tſherepakha, or the turtle, and the great Bolda, into which there is a conflux of the old and new Kutum. It contains ſome elevated ridges, and a great part of it has been gained from the water by incloſure; there remains, however, a very large but ſhallow marſh, which is connected with the Bolda. The proprietor had an opportunity of raiſing theſe dikes at a very ſmall expence, by employing the Turkiſh priſoners taken in the war before the laſt, and tranſported to the banks of the Volga. By ſuch uſeful labour, the water has been drained from nearly eight hundred deſættines of land; beſides the extent of dry ſoil, which previouſly amounted to about ſeven hundred deſættines.

Two villages, Natſhalovo, or Beketovka, and Tuma, together contain a population of about two hundred males, who are entirely employed and ſupported by the lord of the manor. Near Beketovka are the brick buildings belonging to the proprietor of that village, conſiſting of an elegant church, with the family vault on the higheſt hillock; and on the northern ſide of the riſing ground is his dwelling-houſe, with a large central hall,

hall, illuminated by a highly ſuſpended lantern. On the ſouthern ſide, there is a wall that extends to the church, with two turrets, and ſhades the capacious and convenient vaulted cellars of the dwelling-houſe. There are at preſent in theſe cellars fourteen thouſand vedros of wine, the produce of the Governor's vineyards, ready for ſale, and partly kept in uncommonly large caſks. The oldeſt, which is preſerved for the uſe of the proprietor's family, is ſaid to be the produce of the year 1772, from the Hungarian vine, and reſembles a good French wine. It is, however, eaſily perceptible that this wine is indebted for its preſervation to a proportionate addition of brandy. Next to this, the wine made in 1774, of grapes without ſtones, called Kyſhmiſh, deſerves the preference. Of the wines intended for ſale, the oldeſt were of the vintage of 1780. No wines are diſpoſed of here, unleſs they be three years old, and thoſe longeſt kept are the deareſt; for inſtance, that of 1786 is ſold at four rubles the Ruſſian eimer, or vedro, that of 1784 reſembles *Vin de Grave*, is made of Kyſhmiſh, and ſells at three rubles and a half; and the younger kinds are ſold at two rubles and a half the eimer. There are annually preſſed here from four to five thouſand eimers of wine, and the oldeſt caſks are always filled up from thoſe ſucceeding in the order of time. The grapes are preſſed in an appropriate wooden building.

Immediately behind the church and dwelling-houſe, towards the weſt, there is a ſmall vineyard and orchard, which contain vines for the uſe of the houſehold, and are watered by a mill with ſeveral machines for raiſing the water above the level of the ſoil. There is alſo a circular windmill, with a horizontal wheel and ſails, but which is not in uſe.

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The principal vineyards, viz. an old one and another newly planted, are ſituated in a ſouthern direction to the former, and in a parallel line from Eaſt to Weſt, on two eminences expoſed to the South. The more ſouthern, and older vineyard is thickly planted, and ſo abundantly productive of grapes, that it delights the eye of the beholder; ſome branches of which, with thick ſkins, meaſured almoſt three ſpans in length, and thoſe called Kyſhmiſh, two ſpans. This vineyard is provided with three mills for watering the ground, and the central mill is erected on a baſe of brickwork, for the purpoſe of raiſing the water to the higheſt parts. The more northern and younger vineyard is ſituated ſomewhat higher; it is embelliſhed with a pleaſure-houſe, and has four windmills for raiſing the water. The vines, though planted ſeven years ago, have not yet overſpread the vineyard, in conſequence of their being placed at ſo great a diſtance from each other. They produced very few grapes, and the foliage was parched by heat, except in one quarter, which, by way of experiment, had been plentifully manured in the preſent year. The injudicious practice of planting too thin, is generally imitated by the new vine planters of Aſtrakhan: it is unqueſtionably leſs advantageous than the cloſe method, by which the ſoil is ſoon overſhaded, and conſequently requires leſs watering.—The old vineyard contains from eighty to ninety thouſand ſquare fathoms, but the new one only ſixty thouſand. The plants of the old vineyard are diſpoſed in circular and ſemicircular walks and eſpaliers. Thoſe of the other are expanded in the form of a muſhroom, or umbrella. Every kind of grape which this country produces may be found here, but the moſt numerous are the Hungarian,

Hungarian, thoſe with a thin ſkin, and the different ſorts of Kyſhmiſh, which are reckoned the beſt, and are moſt eaſily preſſed.—The intermediate low ground was formerly planted partly with vines, and partly with other fruit-trees. But ſince the water, raiſed for fertilizing the ſoil of the vineyard, has been collected in ditches, and reconducted into this vale, it has become ſo much impregnated with ſaline particles from the more elevated parts, that all the trees have periſhed, and there now only remains the *Zygophyllum*, ſeveral ſpecies of the *Salſola*, ſome ruſhes in the low and marſhy part, and the *Statice Scoparia*, of which brooms are manufactured in Aſtrakhan.

Beſide the vineyards, there are alſo eſtabliſhed on this iſle, a garden, and a mulberry plantation, by the leaves of which, a number of ſilk-worms are nouriſhed, ſo that from fourteen to twenty pounds of ſilk are annually produced.

All theſe plantations are cultivated by the vaſſal boors, each of whom receives for his labour, twelve rubles, and three bags, each containing forty pounds of flour, every year.

There are beſides three vine dreſſers appointed as overſeers.

The deſert and ſaline ſoil of Tſherepakha produces tamariſks, abundance of the *Zygophyllum*, *Anabaſis*, *Salſolæ* of all kinds, the *Meſſerſchmidia*, *Medicago ſativa*, *Schœnus aculeatus*, and *Aſparagus verticillatus*. The leaping *Jaculus* is uncommonly numerous here; becauſe theſe animals increaſe undiſturbed by beaſts of prey, and feed on water melons and other garden fruits. Pheaſants have been brought to this country, where they have greatly multiplied. The melon fields have been planted by the boors, who find a profitable market for this fruit at Aſtrakhan. They alſo cultivate white muſtard, a

part

part of which is converted into oil, and a part ſold in ſeed. The wood, of which frames are made to ſupport the vines, is brought from the environs of Tzaritzin; and the peaſants are in a great meaſure ſupplied with fuel from the cuttings of the vine.

I ſhall on this occaſion give a general deſcription of the manner in which the vine is cultivated at Aſtrakhan, in order that the reader may compare it with that of other countries. The firſt introduction of this excellent plant, as mentioned by OLEARIUS, in his Travels in Perſia, was an experiment made by an Auſtrian monk, who, in the reign of the Tzar IVAN VASSILIEVITSH, planted a few Perſian vines for his own uſe, at Aſtrakhan. When it was found that theſe vines flouriſhed, the Tzar, in the year 1613, cauſed the firſt vineyard to be planted in that city. PETER THE GREAT, who neglected nothing that could contribute to the proſperity of the Empire, encouraged the cultivation of the vine, and invited expert vine-dreſſers and coopers from other countries, whom he encouraged by liberal ſalaries. Notwithſtanding theſe patriotic meaſures, the culture of that uſeful plant was unſucceſsful, till the year 1752, when the Hungarian Major PAROBITSH was appointed Inſpector of the vineyards at Aſtrakhan. During fifteen years, while employed in this buſineſs, he aſcertained by experiments, conducted with zeal and ability, the beſt method of cultivating the vine in this country; and thus conſiderably improved and increaſed the Imperial vineyards. We are indebted to him for the principal ſorts of vines which he imported from Perſia, Hungary, and other countries. By his laudable example, and the obvious advantage ariſing from this branch of induſtry,

many private individuals have been induced to plant vineyards, ſo that there now exiſt ſeveral hundreds in and about Aſtrakhan, ſome of which are the only means of ſupport to their cultivators.

The vineyards of Aſtrakhan are, in general, planted contiguous to the arms of the Volga, which ſurround and interſect the city, that, in a climate where it ſeldom rains in ſummer, they may be the more eaſily watered. For this purpoſe machines, called *Tſhigiri*, have been conſtructed for raiſing the water according to the Eaſtern method; but, in general, they are attended with conſiderable expence, as they cannot be worked without the aid of windmills. As the ridges or eminences of the iſles and the ſteppe, by the Ruſſians called Bugry, run almoſt uniformly from Eaſt to Weſt, all the vines eſtabliſhed on theſe eminences have a ſimilar expoſure. The vines are planted in parallel trenches, called Borosdi, which are about a yard deep, and forty-two inches broad, ſo that they ſerve in ſummer to convey the water to the roots of the plants, and to defend them againſt the cold of winter. Theſe trenches are interſected, at intervals, by tranſverſe furrows, called Progonny, with wooden gutters to convey the water from one canal to another. A certain number of ſuch trenches are collectively called Oſmukha, or in the Tartar language, Salmak. The ridges between two trenches are here denominated Uvalik. The name Oſmukha ſeems to indicate, that eight trenches are always included in one diviſion; but the vine planters do not ſtrictly adhere to this number. The diſtance of the vines from each other, in theſe trenches, differs according to circumſtances. In the old vineyards the plants are only about one

arſhine

arſhine diſtant. In the new plantations, on the contrary, they are three arſhines aſunder. The vines are three or four arſhines high in the old vineyards; they are arranged in eſpaliers, and in the new plantations in double eſpaliers, which run along both ſides of the trenches. Some proprietors alſo diſpoſe their vines in covered walks and arbours. The old method is called Poſadka Spi-ſhnaya, or the cloſe plantation; and the new mode, Poſadka Shatrovaya, or the arbour plantation. The latter certainly admits more air and ſun to the grapes, and allows more room for the roots of the vines to ſpread; but it renders the more frequent watering of the mould neceſſary, and is detrimental to the growth of the vines, till the roots have acquired a ſufficient degree of ſtrength.

The number of the different ſpecies of grapes cultivated at Astrakhan is very conſiderable, and deſerves a detailed deſcription.

The firſt and beſt kind is called Kyſhmiſh, or the grape without ſtones, and was probably introduced from the ſhores of the Perſian Gulph. There are two varieties of this ſpecies, one producing round, and the other oblong fruit; both of a white colour; the former acquires a ſhade of green, and the latter has a yellowiſh tint, at the time of maturity. Both ſorts have a ſimilar foliage; but the leaves of the round kind remain green till their fall. They produce large bunches of ſmall, delicious grapes, with a thin ſkin, which are conſequently too delicate for conveyance, and more profitable for the wine-preſs. Some traces of ſtones are indeed obſervable in theſe grapes; but they are ſo ſmall, and lie ſo cloſe to the ſtalk, that they are not perceived on eating the fruit. The Kyſhmiſh are the earlieſt

grapes of this country, being ripe even at the end of July, or beginning of Auguſt; and they, as well as the Hungarian grape, produce the beſt wine.

The ſecond ſpecies of grape is called Skoroſpeloi, or the early ſort. It is a white, round fruit, with a thin ſkin, ripens about the ſame time as the Kyſhmiſh, has a delicate flavour, and is almoſt excluſively uſed at table, being rarely converted into wine.

The third ſpecies is the Hungarian grape, of two varieties, a white and a black. The former grows in almoſt every vineyard, but the latter is very ſcarce. Both are round, with a thin ſkin, and remarkably ſweet. They ripen in Auguſt, when they burſt and begin to drop their juice. On this account they are unfit for the market; and being generally preſſed, they yield wine of a ſuperior quality. The vines of this ſpecies have ſhort articulations, and the lower ſide of their leaves is covered with a white down.

The fourth is the thick ſkinned grape, or Tolſtokoroi. This term implies a large, round, white grape, covered with a thick ſkin: it may be preſerved for a long time, and is peculiarly calculated for exportation. It ripens in the month of Auguſt; all the vineyards abound with it; and it is ranked among the grapes for the wine-preſs.

The fifth ſpecies is the long, white grape, or the Byeloi dolgoi, which takes the name from its exterior appearance. It is tolerably palatable, not very common, and therefore principally uſed at the table.

The ſixth is the common black ſpecies. It produces pretty large, round grapes, which begin to ripen in Auguſt, but remain on the vine till October.

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The ſeventh is diſtinguiſhed by the name of the fat grape, or Shirnoi. It is round, covered with a light-blue ſkin, and contains a rich juice. It does not remain long on the vine, burſts when ripe, and is unfit for carriage. The vine itſelf is remarkably thick; a circumſtance by which it is diſtinguiſhed from all others.

The eighth ſpecies is the muſcadel, or Duſhiſtoi, which produces white and red fruit. Both conſiſt of a round grape, with a thin ſkin, and poſſeſs a ſimilar delicious flavour. But not being abundant, they are not preſſed for wine. The white ſpecies becomes ſomewhat yellow as it ripens; but the red is of a bright colour, and, as it were, froſted. They come to maturity in Auguſt.

The ninth ſort is commonly called Kaſbinſkoi, from the name of the city of Kaſbine, in Perſia, whence the firſt of theſe vines were imported. This ſpecies has three diſtinct varieties. The firſt is called Bokalnoi, or Riſh Babai, from the cylindrical form of its white grapes, which are ſmaller towards the centre: they are uncommonly large, and frequently an inch long. The ſecond is the red kind, or Saſianoi, a grape equally large, of an oval form, and tranſparent red colour. The third is the black grape, not quite ſo large; it is oval, and of a dark brown colour. Theſe grapes are eſteemed for their ſize more than their flavour, which is not very agreeable; and being cultivated not only for the table, but alſo for exportation, on account of their thick ſkin, they may be long preſerved.—Theſe three varieties ripen in September; and their foliage is larger than that of any other ſpecies.

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The tenth kind, called goats' teats, or Kofy Titki, is likewife a Perfian grape; they are greeniſh, and of an irregular cylindrical form, fomewhat reſembling a finger. This fruit is ſcarce, very ſavoury, and ripens in September.

The eleventh is that of Conſtantinople, called by the natives Tzaregradſkoi, from the place of its origin. It bears a very large oval grape, of a mahogany colour, is almoſt as big as a plumb, and hangs on a brittle ſtalk. This fruit is tolerably abundant in the vineyards, and is uſed at table as well as for the wine-preſs: but, in both reſpects, it is not of a very ſuperior quality, and ripens late in September, or in the beginning of October.

The lateſt ſpecies of the vine is that called the autumnal, or Oſſentſhak. It bears a round grape, with a thick ſkin, of a light ſtraw-colour, has a tolerably good flavour, and yields the common white wine. It may be preſerved freſh throughout the winter, if hung up by bunches, in a dry place.

The manner of planting theſe different ſorts of the vine, at Aſtrakhan, is nearly the ſame as that practiſed in other countries; partly by ſhoots, and partly by ſlips. The ſoil, however, is very poor, and conſiſts almoſt entirely of clay combined with ſand; hence it requires to be manured before the vine is planted, and, after ſeveral experiments, horſe-dung has been found to be the moſt beneficial. The trenches in which they plant the vines are generally filled with a mixture of earth and old manure. Thoſe proprietors who wiſh to ſpare the manure, fill only the ſmall pit which is made for the plant, and is about three ſpans wide and three deep. This economy, however, is productive

tive of no permanent benefit; for, as ſoon as the roots of the vine extend, they are but weakly nouriſhed. Nothing is more advantageous, in general, for this plantation, than previouſly to manure the ſoil for a few years, and plant it with cabbages or water melons.

The planting of the vine ſhoots or ſlips takes place according to the weather and other circumſtances, generally in ſpring, and ſometimes even in autumn. The ſhoots are either firſt placed thick in trenches, and after ſtanding two years, the neceſſary ſupply is tranſplanted, and thus ſufficient room is left for the remainder to ſpread; or they are planted, at firſt, with five or ſix ſhoots in each pit of the trenches before mentioned: ſome old putrified manure is then thrown into the trenches and pits; this is covered with a thin layer of compoſt in which the ſhoots are placed, and at length overſpread with mould. There ſhould be four eyes left to each of the weaker plants; but three are ſufficient for thoſe of greater vigour. The plants are ſet in an oblique direction, ſo that one end touches the edge of the trench, and only one knot appears with its bud above the ſurface, which is covered with a light mould, to protect it from the heat of the ſun. When they are planted, water is conveyed into the trenches; and this fertilizing ſupply is repeated at leaſt ten times during the ſummer. All weeds are conſtantly cleared from the trenches; and thus, on account of the rapid vegetation, the vines bear fruit even in the third year.

The ſlips are generally cut in autumn, after the vintage; and for that purpoſe the moſt healthy vines from two to three years old are ſelected. Theſe are placed on both ſides of the parent plant,

plant, in manured ſoil, and two or three knots only are left above ground. In the following ſummer, having taken ſufficient root, they are then ſeparated from the vine and tranſplanted.

In order to re-invigorate the old and exhauſted vines, a proceſs is adopted, called Potoplenie, or burying them under ground.

The whole trunk is covered in a manured ſoil, to convert the ſprigs into roots, and only ſo many as have room to thrive are allowed to grow: when the ſtocks are not weak, the root alone is uſually buried in a ſoil mixed with old manure.

The other kinds of labour which a vineyard requires, from ſpring to autumn, are the following:—Digging of the ſoil, Raſgrebka; tying up the ſhoots, Podwaſka; watering, Poliva; watching the ripe grapes, to preſerve them from the birds, Podboika; the vintage, Reſka; cutting of the vines, Obreſka; and laying them under ground, Sagrebka.

The firſt work in ſpring is to dig up the vines, which, on account of the ſevere winter froſts, muſt always be buried. It is of great advantage, that this ſhould be done at a proper time, as the fruitfulneſs of the vines depends very much on this circumſtance: for, if they are too ſoon uncovered, the morning froſts are ſometimes detrimental to the firſt buds; if, on the other hand, they are taken out too late, ſo that the buds have previouſly ſprouted under the earth, they may be injured either by the ſpade, or in tying. From long experience it has been aſcertained, that the moſt proper period to perform this operation is the laſt week in March, if the weather permits. A vine-dreſſer is able to dig up and dreſs about fifty vines a-day.

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The next operation is to tye the twigs. For this purpoſe the ſtrings of untwiſted ropes are uſed, which occaſion a conſiderable expence. The inner rind of the lime-tree is not ſtrong enough to ſuſtain the weight of the grapes, eſpecially when violent gales blow from the ſea, in ſummer.

As ſoon as theſe two branches of cultivation have been attended to, the nature of the dry climate and ſoil of the country renders the watering of the plantation neceſſary. In my opinion, the roots of the vine, by ſpreading too near the ſurface, in conſequence of frequent watering, from the time they are firſt planted, renders the continuance of this artificial aid indiſpenſable. If an attempt were made in autumn, to plant a vineyard on the ſandy and moiſt eminences, along the weſtern bank of the Volga, in a proper ſituation, and to place the vines ſo deep that they would grow from the time they were planted, without being watered, I am of opinion, that experience would evince the practicability of cultivating this plant with ſucceſs, even in the hotteſt ſummer.—The wine thus produced would certainly be richer and more ſpirituous than that obtained from the watery grapes of the preſent plantations; eſpecially, if the ſtocks of the vine were cut ſhorter than they are according to the preſent method. On the contrary, the watering plan, by promoting the exuberant vegetation of the ſucculent vines renders it expedient to lop them at a conſiderable height, and thus occaſions a great expence, in wood for the eſpaliers, in workmen's wages, mills for raiſing water, and the like. The moſt adviſable method would be to rear the vine in a coppice formed by ſeveral ſhoots, as is practiſed in Hungary, and thus facilitate the neceſſary covering in winter. Such would be my mode of

eſtabliſhing dry plantations.—At preſent, there is no vineyard in this neighbourhood without one or more windmills, or machines to raiſe water, which are worked by oxen or horſes, and with which the ſoil is as it were inundated, at leaſt ſeven times, from ſpring to the middle of July; inſomuch that it is nearly converted into a moraſs. This frequent watering, together with the early vegetation of the vine, which is promoted by having been buried under ground in winter, accelerates the growth and maturity of the grapes, and renders them large and beautiful; but the vine itſelf is thereby proportionally exhauſted.—The method now followed in the vineyards cannot be eaſily changed; as the plants are ſet on hillocks which are naturally dry, they will not thrive without thoſe artificial waterings, and conſequently take only ſlight root. Hence, if the uſual ſupply of water were withheld from them, the vines as well as their fruit would ſuffer by the change.

At the time of watering, the weeds in theſe vineyards are carefully extirpated with ſhovels. The weeding is performed twice; firſt, when the vine is in bloſſom, and the ſecond time, after the bloſſoms have faded. The moſt common weeds are, a wild ſalad, the *Lactuca querna*, hemp, the *Siſymbrium Iris*, *Læſelii*, *Sophia*, and *altiſſimum*, *Thlaſpi burſa*, which the Armenians uſe as an early pot-herb; the *Lepidium perfoliatum* and *ruderale*, likewiſe the *Sinapis rubella*, which is a good early ſallad; the *Cynanchum acutum*, *Convolvulus terreſtris*, *Lamium multifidum*, *Glechoma*, *Aſtragalus phyſodes*, ſome ſpecies of the *Salſolæ*, *Zygophyllum Fabago*, *Harmala*, *Scorzonera runcinata*, *Ranunculus falcatus*, *Hypecoum pendulum*, and *Panicum Crus galli*. The laſt mentioned plant attaches itſelf to the clothes with its *hamuli*, or little

little hooks, and is called Lyubimaya Traba, or the love-plant.

In the latter end of July, when the grape begins to ripen, a great number of birds infeſt the vineyards of Aſtrakhan, ſuch as the common and winter crow, woodpeckers, magpies, and ſtarlings. The voracity of the magpies and numerous flights of ſtarlings is ſo great, that the proprietors of the vineyards are obliged to employ perſons to watch them; who ſtand upon ſcaffolds called Vyſhki, that they may diſtinctly view the plantations in every direction, and frighten away the birds with rattles, or if that be ineffectual, they pelt them with ſmall balls of clay. In the morning, and at ſunſet, they are obliged to redouble their vigilance, becauſe the birds are then moſt eager for the fruit. The little *Motacilla Trochilus* makes its appearance among theſe birds, and is very expert at emptying the grapes with its beak.

At this period it is cuſtomary to ſtrip the vines of their ſuperfluous foliage, with a view to promote the ripening of the grapes: and thus the vintage gradually approaches. About the middle of September the vintagers begin to preſs the wine, and progreſſively continue their labours with the different ſorts of grapes, as they ripen. Some proprietors begin ſtill earlier, but to delay the vintage to a later period would be impracticable here, on account of the watery quality of the grapes, in conſequence of which they cannot remain long on the vines, without beginning to drop and decay.

The preſſing of the wine is performed by putting the grapes into bags, and treading upon them in buts or tubs. The huſks, or Guſhtſha, are preſſed a ſecond time by ſome vintagers, but

others leave the remaining juice in them, in order to obtain more brandy.

After the vintage, the vines muſt be lopped before winter; an operation that requires great experience and judgment. The old woody twigs, which no longer promiſe any fruitful ſhoots, are entirely lopped away, and ſuch a number only is left of the biennial ſhoots, as the ſtock is capable of nouriſhing. The annual fruit-bearing vines, are likewiſe lopped to the third knot, becauſe it has been found by experienced vine-dreſſers, that the plants thus cut are for a longer ſpace of time productive of fruit. The ſlips which are cut for future planting, are tied together, and buried during winter.

The parent vines themſelves are buried under the earth during that ſeaſon, as the ſoil is in general but thinly covered with ſnow, and the froſt in ſome years riſes to 23 degrees of Reaumur's thermometer. Each vine is firſt diſengaged from its ſupporting frame-work; its branches are tied together; and it is then placed in a trench, covered with hay, and afterwards with a thick layer of mould, to preſerve it from froſt.—All theſe labours are performed in moſt of the vineyards by hired workmen.—The watchmen and two other labourers who are appointed to manage the watering machines, receive from thirty to forty rubles a year, and the reſt are paid at the rate of five rubles a month.

Notwithſtanding theſe expences, the vineyards of this country are tolerably profitable. The moſt conſiderable cultivators next to M. de Beketof, are Ivan Avramof, the heirs of Popof, who have purchaſed the beſt vineyards that formerly belonged to the Crown, Jacob Federof, and Vaſſili Kaftaraſof. The price of freſh

freſh grapes ſent to the markets of Moſco and St. Peterſburg, together with the wines, brandy, and vinegar, amply repay the diſburſements. White wine is the principal produce of theſe vineyards. Among the red wines, there is one kind ſimilar to the common *Lachryma Chriſti*, made by Jacob Oftſharkin, who probably avails himſelf of ſome artificial proceſs. Popof, the merchant, prepares a ſpecies of effervescent wine, ſomewhat ſimilar to Champagne, and very agreeable to the palate. For this purpoſe, he takes the ſweet muſt of the Kyſhmiſh, when it is ſomewhat fermented, and places it in ſmall caſks in an ice-cellar, and when it is clarified, he draws it off into ſtrong bottles. The common white wine is not unlike Vin de Grave, and with a ſmall addition of brandy, it keeps ſound for ſeveral years. The wines brought hither from the banks of the Terek, eſpecially the red kind, are much ſtronger; but they doubtleſs contain a portion of brandy, as is diſcoverable by their flavour. In that country, the vine is generally cultivated in a manner ſimilar to that practiſed here; but the plants are not ſo well managed: the common ſorts readily turn acid, and are drank only by tiplers, under the name of Tſhiſhir. The culture of the vine might be greatly encouraged in Aſtrakhan, as well as on the banks of the Terek, the Don, and particularly in Taurida, if the importation of Moldavian wines were ſubject to a heavy duty, or wholly prohibited. A ſtill higher duty ſhould be laid on the wines of the Archipelago, which are ſo prejudicial to health, and being cheaper, injure the ſale of thoſe produced in this country.

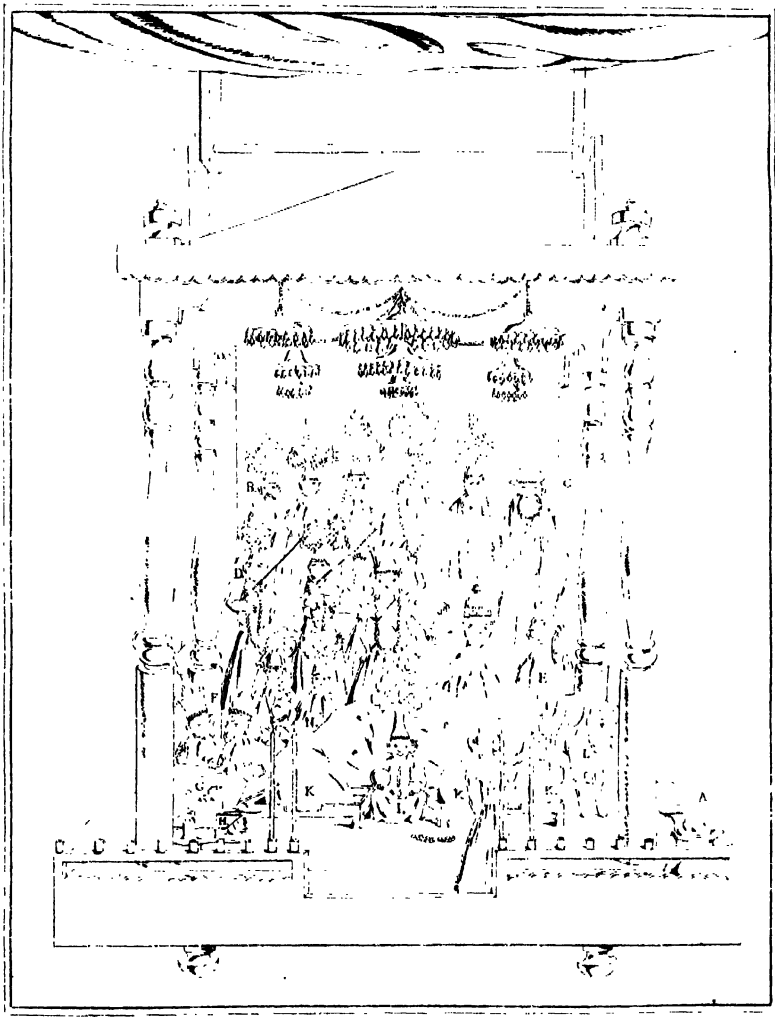
To preſerve the grapes, throughout the winter, they are either ſuſpended, covered with millet and wood aſhes, placed in

in honey and brandy, or preſerved in ſalt. The laſt-mentioned method is alſo adopted with aſparagus, which is very abundant, and in this manner it is kept till the ſpring produces the freſh plant.

During my ſtay at Aſtrakhan, I attended with pleaſure at the idolatrous worſhip of thoſe Indian merchants of Multaniſtan, who reſide together in the Indian Court, called Indeiſkoi Dvor. Though ſome account of theſe idolaters has already been given in a work entitled *Nordiſche Beyträge*, yet I do not think it ſuperfluous to relate what I remarked among them at this time, and to annex a repreſentation of their idols, as well as of their manner of aſſembling.

Theſe Multanes, whoſe country is now ſubject to Timur Shah of Avgan, and whoſe language bears the greateſt analogy to that of the Gypſies, perform an ablution in the Volga every evening, previous to the worſhip of their idols. As they have no appropriate place of devotion, they meet in the chamber of their prieſt, who is not a regular Bramin, but a Derviſe. The pagoda, or altar, as repreſented in the two Plates, No. 8 and 9, is ſuſpended in a corner on the right, oppoſite the prieſt's couch. Every thing here, as well as in the chamber of the forty Indians, appeared in a more miſerable ſtate than formerly, ſince a part of this people have abjured the religion of their anceſtors, and have been incorporated among the citizens of Aſtrakhan, with a view to defraud their mercantile correſpondents in India.

I was ſtruck with the appearance of the Derviſe, whom I had formerly ſeen clothed in a robe and girdle perfectly white, which


B
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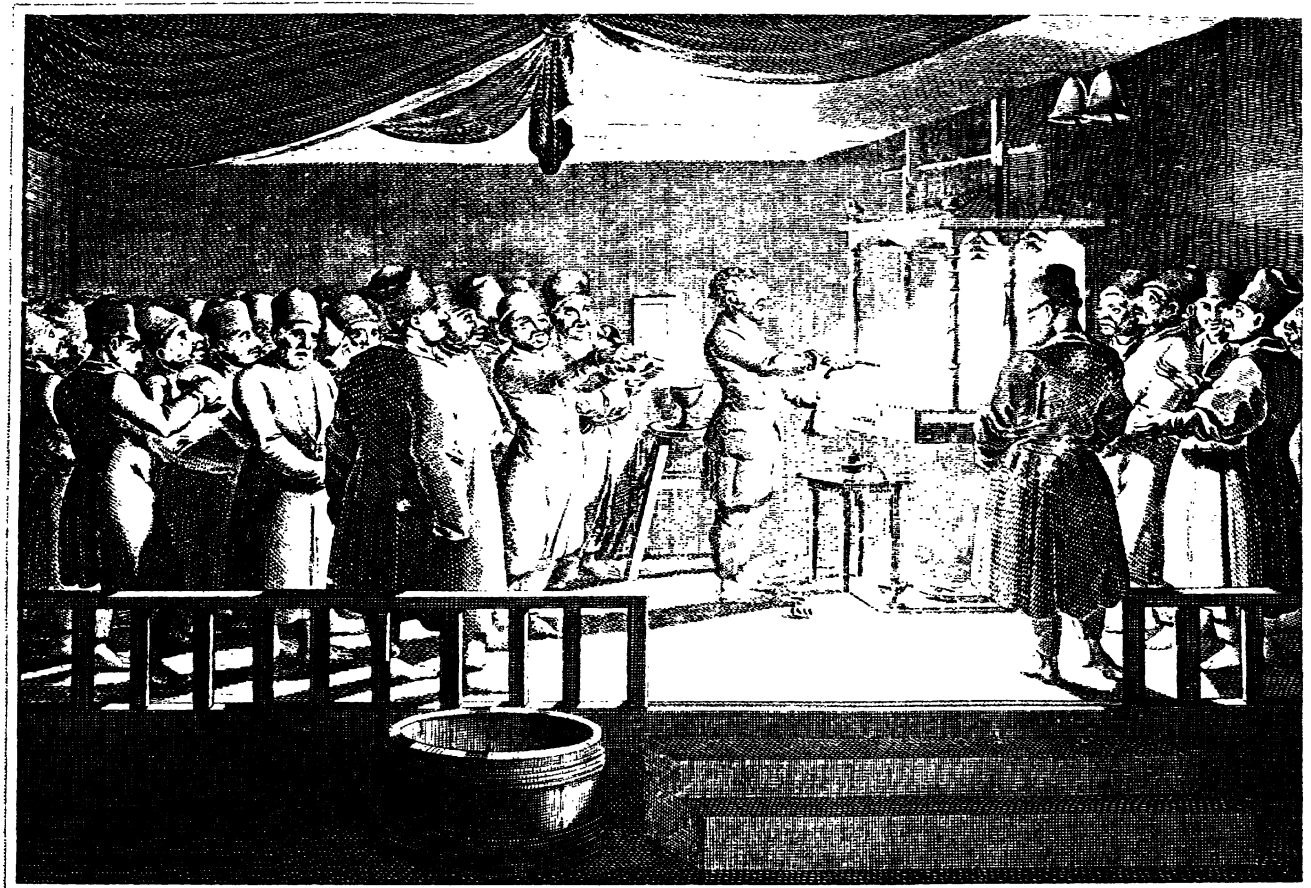
which dreſs appears to be an excluſive privilege of the Bramins. But he now performed the religious ceremonies in a cloth veſt buttoned up, and long white breeches partly covered with a rediſh garb. His head was not ſhorn like the other Indians, but he wore ſhort hair, and had a round ſpot, ſtained with vermillion, above his noſe. The other Indians, on the contrary, were ſhaved, except a tuft of hair on the crown of the head. They generally, after bathing, deſcribe ſome Indian character with turmeric on the forehead.

We were requeſted to pull off our ſhoes, or clean them, as the others did, before we aſcended the elevated part of the chamber, which was appropriated to devotion. The Derviſe began the ſervice with ſilent prayers and meditations. Some of the Indians then placed melons and other fruits on the floor, beſide the pagoda. The Derviſe placed himſelf before the ſhrine of the idols, which was illuminated by a row of candles in front. To the left of the prieſt, on a ſmall table, Plate 9, there was a large double lamp filled with tallow, and kept burning night and day. The mirror ſuſpended on the wall above the table was inverted. To the right, on the floor, there was a metal baſon, with a ſalver which half covered it, and on the left were two cymbals of the Janiſſaries, and two ſmaller muſical cups, ſimilar to thoſe uſed by the Kalmuk prieſts. A ſmall table was placed before the Derviſe, under the ſuſpended pagoda, with a little cenſer, and a particular lamp with five wicks. The idolatrous worſhip commenced in a loud voice; an Indian pulled the ſtring of the bells which hung at the ſide of the ſhrine, and two others took ſmall cymbals in their hands. They all ſung an harmonious litany, in uniſon to the tinkling of the

bells

bells and cymbals. This hymn was begun by the Derviſe himſelf, with a ſacerdotal bell in his left hand, like that uſed by the Lama. In the firſt diviſion of the hymn, addreſſed to the idols, the Derviſe took the cenſer, and throwing ſome gum copal into it, he offered the incenſe before the ſhrine, upwards, downwards, and in a circular direction; a ceremony intended to repreſent the element of air. After having performed this part of the ſervice, he took a ſquare folded piece of cloth, which lay before the idols, and moved it in various oſcillations before them, as ſymbolical of the element of the earth. He next ſucceſſively lighted the five wicks of the lamp, repreſented in the Plate, and during continued hymns moved it in different directions before the idols, as emblematical of the element of fire. Having finiſhed this rite, he placed the lamp on a ſmall ſalver, and it was then carried by a member of the congregation to all the worſhippers preſent: each of whom, after having reverently held his hand over the five flames, touched his eyes with his warmed fingers. This part of the ceremony being concluded, the prieſt received the lamp, and extinguiſhed the five flames with its pedeſtal: but the wick with which he had lighted them, he threw into the large lamp.

At length, the element of water was worſhipped. For this purpoſe, pure water was kept ready in a large marine ſhell, Plates 8 and 9, which was placed on a braſs vaſe ſupported by the right corner of the pagoda. The Derviſe took this ſhell, and, between the pauſes of the ſong, he poured the water it contained with much dexterity from a conſiderable height into the half-covered cup on the floor; and laſtly, dipping his hand into this holy water, he beſprinkled the whole congregation, who



who received this benediction very devoutly, and with folded hands.

After the litany was finiſhed, the Derviſe gave the cup with holy water to the perſon who chimed the bells, and ſat down, together with the whole congregation, croſs-legged on the carpet: he then cauſed a ſpoonful of holy water to be poured into the palm of each perſon's hand, who religiouſly ſwallowed it, and moiſtened his head and eyes with his wet palm. The Derviſe afterwards took the remainder, with which he waſhed his head and eyes, and poured it into the vaſe that ſupported the ſhell before the idols. He then ſaid a long prayer for the Empreſs, the conſtituted authorities, and the people. After this ceremony, the Indians were preſented with dried raiſins without ſtones, or Kyſhmiſh, on a plate; and after they had all riſen, plates with ſugar-candy and piſtachio nuts were offered to the ſtrangers. When the whole ceremony was concluded, we were permitted to approach and make drawings of the pagoda, without touching any part of it. At our requeſt, the prieſt himſelf uncovered part of the idols, which were dreſſed in ſky-blue and pale roſe-coloured ſilk cloaks, deſcribing them to us by their names. In the back-ground, elevated on a pedeſtal, in a direction from right to left, we obſerved the following: Sagenat, Tſettergun, Letſeman, Rama, Bahart, and Lekumi, as they are repreſented in the eighth Plate, from B to C. The firſt five were adorned with high moveable bonnets. The laſt was a repreſentation of a female, dreſſed in a kind of turban, with a ring in her noſe.—On a lower ſtep, in the ſecond row, on the right ſide, from D to E, were Murli and Mrohor; they were decorated with high bonnets, but without ſilk garments,

and held ſtaves in their right hand, over their ſhoulders. In the midſt, there was a figure called Aſhtabudſhi, with eight arms, and crowned like Cybele; the next was a figure called Saddaſho, in a ſitting poſture, with a round bonnet, and Honuman, an idol reſembling Apis, with a dog's head, and rings in his ears. Small idols and relics crowded together, occupied the front part of the ſhrine. Before the figures that held ſtaves in their hands, we obſerved two diſtinguiſhed pictures of Viſhnu and Brama, or as they pronounce it, Brmahah, N. Farther to the right, there were two very prominent ſitting idols, in the form of apes, which were likewiſe called Honuman, with long-pointed caps, like crowns. In front of theſe was the figure of a tiger, or lioneſs, caſt in copper, like the idols, and called Sſurr-nur-ſeng. Laſtly, towards the corner, we noticed three figures ſimilar to the Duruma of the Mongolian Lamas, which appeared to repreſent Lingams, and were called Shadiſham, H; that in the middle leaned on a ſquare pedeſtal of yellow amber, in the form of an obtuſe cone, ſtudded with grains of rice: two other ſmall columns reſted on a baſe ſimilar to a lamp, which repreſented the female parts of generation. In the middle was placed a ſmall idol, I, with a very high bonnet, called Gupaledſhi: at its right ſide there was a large black ſtone, and on the left, two ſmaller ones of the ſame colour, K K K, brought from the Ganges, and regarded by the Indians as ſacred. Theſe foſſils were of the ſpecies called Shoſs, Saugh, or Śankara, and appeared to be an impreſſion either of a bivalve muſcle, with long protuberances, or of a particular ſpecies of ſea-hog. I have never ſeen among petrifactions theſe ſtones with a figured elevation, by which the

the Indians endeavour to repreſent certain female parts, and raiſe the colour by yellow ſtreaks of turmeric. Such ſtones are held in the greateſt veneration among them. Behind the foremoſt idol, there was a folded ſilk garment lying acroſs. In the corner ſtood the figure of a ſaddled lion, L, called Nhandigana. There was beſides an image at the edge of the ſhrine, with its face turned towards the other idols. He appeared almoſt withered, had large ears, and was called Gori. The front ſpace likewiſe contained the bell, or Ghenta, of the idolatrous prieſt, as well as his roſary, and a ſceptre, ſuch as is peculiar to the Lama clergy. From theſe details, the great analogy between the idolatrous worſhip of the Lama of Tybet, and ſome ceremonies of the Indians, and even of the ancient Chriſtian Church, will be evident.

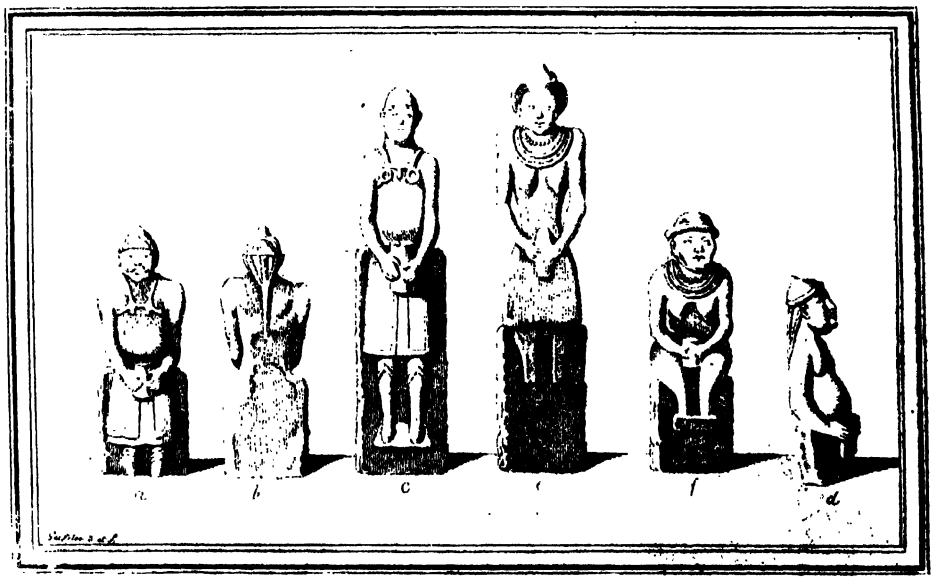
On the 19th of Auguſt, I aſſiſted at a very remarkable ceremony, which took place after the ordinary celebration of divine ſervice, in the metropolitan church of the Armenians. The Suffragan, or Archimandrite, carried in a ſolemn manner the holy oil, or Myron, which is only prepared every four or five years in the Araratian convent of Etſh Miadſin, and is afterwards diſtributed to all the churches of the Armenio-Neſtorians. This oil was brought in large copper flaſks, and ſlowly poured by the Suffragan, with much attention, and many pauſes, into glaſs bottles, in order to exhibit it to the people. The ceremony laſted full two hours and a half, during which were ſaid a long litany and prayers for all ranks of people: the whole concluded with the Lord's Supper, and a

general benediction, which was given by the Archimandite alone. I obtained permiſſion to examine the oil; it had acquired a green colour from the copper veſſel, and a rancid ſmell. It taſted like oil of olives, partaking of the odour of maſtich. I was told that it was prepared in forty days, from flowers and plants of forty different ſorts, which were collected with great ſecrecy on the mountains of Anadolia, and the Caucaſus.

On the 20th of Auguſt M. Akhmatof, Captain of the Port of Aſtrakhan, granted me a barge, in order to ſend a party to the mouth of the Volga; a diſtance from ſixty to eighty verſts, where, according to the information I had obtained from the late Dr. LERCH, the *Nymphæa Nelumbo* grew in abundance, ſo that I procured a great number of flowers and fruits of this plant, in different gradations of growth; ſome of which had nearly attained perfect maturity. The fruits, which the Ruſſians call ſea-nuts, or Morſkye Orekhi, the inhabitants of Tybet, Badma, the Perſians, Dariopacta, and the Indians, Pabin, or Lilifar, are ſearched for, and eaten with avidity, by the laſt-mentioned nation, who regard them as ſacred. According to their mythology, and that of Tybet, the perfect divinities are regenerated in the richly ſcented flowers of this plant, which ſerve them for a throne. Indeed theſe flowers have an agreeable flavour, and the diſtilled water which the apothecary of this city, the Aſſeſſor ZETTLER, had the politeneſs to prepare for me, contains an agreeable and permanent taſte of fine Ambra, and, when uſed as a lotion, imparts ſuch a ſoft-

neſs

neſs and delicacy to the ſkin of the face and hands, that it deſerves to be introduced as an innocent coſmetic into all the apothecaries' ſhops, eſpecially as the flowers may be collected throughout the ſummer, in the inlets of the Volga and the Bolda. — I found the leaves of this plant completely free from Zoophytes, and other aquatic inſects. The ſeminal veſſels are more conſpicuous, and the germ more magnified in the ſeed of the *Nymphæa Nelumbo*, than in any other plant. When the nuts are incloſed in a lump of clay, and immerſed under water, they readily germinate, particularly if a ſlight inciſion has been previouſly made in the ſhell.



Journey from Georgiefsk to Tſherkaſk and Taganrog.

On the twenty-third of September, in the afternoon, we left Georgiefsk, with a view to reach Taurida before the ſetting in of the winter. The weather was unuſually ſerene and agreeable for the autumnal ſeaſon, excepting the morning fogs, which extended from the mountains to a conſiderable diſtance into the country. My firſt intention was to travel along the banks of the river Kuban to the Iſle of Taman, and thence to proceed to Kertſh and the Tauridan peninſula; but this road, which would conſiderably have ſhortened my journey, was, according to the different accounts I obtained, impaſſable with carriages, and could be undertaken only on horſeback; both on account

account of the branches of water and fens occaſioned by the overflowing of the above river, which is not provided with proper bridges, and becauſe the low country is frequently inundated in conſequence of the ſea-winds. The Kozaks of Tſhernomorſki, having but lately reſorted hither from their ancient habitations, had juſt begun to ſettle themſelves in the lower countries of the Volga; ſo that they could not be expected to have beſtowed much attention to the improvement of the roads.

In conſequence of theſe impediments, I reſolved to take a circuitous route by Tſherkaſk, Taganrog, and Perekop, at which places regular poſt-ſtations have been eſtabliſhed, and are continued along the whole road to Taurida.

After travelling ſeveral verſts, in deſcending the high ſteppe on which Georgiefsk is ſituated, we proceeded over a conſiderable declivity to an extenſive, low, and level country: this is traverſed by the river Kuma, flowing between clayey banks, with a deep current of turbid and muddy water, from ſeven to eight fathoms broad, and uniting farther downwards with the more rapid Podkuma, which rolls over a bed of ſtones. Along the banks of the Kuma there are foreſts producing different kinds of wood, the growth of which, however, is not attended to in theſe regions of wilderneſs. Beyond this river, the low country again gently riſes; but we could ſtill obſerve, at a diſtance, the baſe of the promontory terminating in two terraces, while on our left we ſaw, towards the ſource of the Kuma, what is called the Iron Mount with its flat top, and ornamented with a beautiful thicket: at a ſtill greater diſtance appeared the Mount of Serpents, conſiſting of horizontal ſtrata of lime, which gradually declined towards the banks of the Kuma.

We

We reſted this night at Alexandria Sloboda, a large village contiguous to the abrupt bank of the Kuma: our hoſt, M. de Baſſe, the ſuperintendant of the Victualling-Office, received us with marks of great hoſpitality. On the oppoſite bank of the Kuma, we obſerved a pleaſant wood, in which a ſmall vineyard had been planted by a Ruſſian peaſant.—Kumſkaya, or Kum-gora, is about fifteen verſts diſtant from this place, on the left bank, towards the ſource of the river, and produces ſeveral ſulphureous, tepid ſprings.

On the twenty-fourth of September we aſcended very gradually from the low country of the Kuma towards the prominent heights which repreſent three parallel ridges, extending in a direction from Weſt to Eaſt, and North-eaſt: this plain has a very heavy ſoil of clay, which the river had apparently ſoftened by ſucceſſive inundations. Between thoſe three ridges, we took notice of two dry beds of rivulets, which begin to form the Sukhoi, or dry Karamyk; and, after paſſing the laſt ridge, we arrived at the Karamykly, which is ſometimes called Mokroi, ſignifying the wet Karamyk; it is ſuppoſed to be forty verſts diſtant, but at preſent it contained no water, except a ſmall quantity collected in pits, which had been dug above the village inhabited by invalid ſoldiers. The diſtance of this village from Alexandria has evidently been exaggerated in the military routes; as, according to my calculation, it can ſcarcely amount to thirty verſts.

On the black ſoil of the fertile ſteppe we obſerved in every direction a very luxuriant vegetation. Beſides the *Statice Coriaria*, the great *Crambe orientalis*, and *Dipſacus laciniatus*, we met

met with large umbrageous plants, ſuch as thiſtles, burdock, and wild orach in abundance, together with many others of a gigantic growth. We alſo, for the firſt time, diſcovered here, as well as on the ſucceeding heights towards Severnoi, the flower-de-luce which GULDENSTADT conſiders as a peculiar genus, and denominates it the *Iris deſertorum;* but which, in every reſpect, agrees with JACQUIN's *Iris ſpuria*, except that its flowers in this region are uniformly white: the dry capſules of this plant were generally perforated by the worm.

After paſſing the Karamyk, we again aſcended a conſiderable mountainous tract, from which the ſmall rivulet of Sablya, or Kliſh, runs in a ſerpentine direction towards the Karamykly, and its banks are here and there covered with bruſhwood: on theſe eminences we firſt diſtinctly perceived the horizontal bed of ſand which forms the ſubſequent hilly ridge.—In their vicinity we likewiſe met with the *Colchicum autumnale*, which was now in full bloſſom.—From the heights we proceeded to a low valley, in which the rivulet Tonguſly, or hog's-water, takes its ſource: on the oppoſite ſide of that rivulet is ſituated the new fortreſs and town of Alexandrofsk, and on the banks along our road is a large Slobode, or village, ſurrounded with a rampart. Between theſe two places the rivulet has been dammed up, ſo as to form a ſmall pond.

The town of Alexandrofsk belongs to the new Lines eſtabliſhed in the year 1777, which, at preſent, are to a certain degree rendered ſuperfluous, by a more connected fortification of the river Kuban, and the ſubſequent population of its lower part, where the Kozaks of Tſhernomorſki have been colonized: all

all the forts of theſe Lines have been converted into diſtrict-towns, which, however, ſtill ſerve as garriſons for a part of the numerous troops ſtationed on this frontier.

Beyond Alexandrofsk, we ſaw before us a conſiderable ridge conſiſting of a ſandy rock, which we aſcended, after paſſing a valley incloſed by it on the one ſide, and by the rivulet Tonguſly on the other: in this valley we obſerved ſeveral detached pieces of rock ſcattered in various parts. The ſmall hilly tract is compoſed of an horizontal ſtratum of ſand ſtone, incumbent on calcareous maſſes; it is a yellowiſh and grey foſſil, breaking in large ſquares and almoſt horizontal thick layers, from which, eſpecially on the north-weſtern ſide, mill-ſtones are hewn for the uſe of the whole neighbourhood. The tract itſelf has received different names: it extends in a chain from the foot of the Elburus; and, before it declines towards the level of the ſteppe, preſents a high projecting ridge. On arriving at the top of this ſteep eminence, we found a dale ſurrounded with heights: here ariſes the ſmall rivulet Ternovka, which joins the Tonguſly. We at length very precipitately deſcended towards an extenſive valley, on the open and horizontal elevation of which is erected the fortreſs of Severnoi, fifteen verſts diſtant from Alexandrofsk: it is defended by a large and entrenched village belonging to the Kozaks, who have alſo fortified it with ſeveral redoubts.—The north-weſtern declivity leading thither has occaſionally a ſandy ſurface, and is overgrown with the abundant *Cytiſus piloſus*, which here attains to an uncommon height; but we could not diſcover the before-mentioned plants, which are peculiar to this kind of ſoil.

The mountainous ridge before deſcribed is a branch of the promontory of the Elburus, and runs in a northern direction, between the ſource of the Kuma and the angle formed by that river, after it has interſected the high mountains; it compriſes the heights of Kara-Yælla, or Vorofskoi-Leſs, ſignifying the wood of robbers, as well as thoſe of Krugloi-Leſs, or the round foreſt, and, before it reaches Severnoi, preſents a high peak which, on account of its expoſed ſituation to the wind, is called the Sviſtun, or the whiſtling mount: at length we loſt ſight of this ridge, after having croſſed it between the ſources of the Tonguſly and the Kalaus. On proceeding from the low ſteppe which borders on the Kuma, towards this hilly tract, the plain country about Privolnœ begins gradually to riſe. Near the Karamyk there is a conſiderable terrace, which becomes higher towards the ſource of that rivulet, till it forms the heights above-mentioned; and, after preſenting a variety of hillocks, which riſe progreſſively, and extend even beyond the ſource of the Tonguſly, it joins the higheſt ridge of ſand-ſtone.

The eminences, which decline towards the ſteppe, belong to the ſame tract, and extend along the right bank of the Kuban as far as Protſhnoi Okop. Thoſe irregular and broken mountains ſituated oppoſite to the ſource of the leſſer Selentſhuk, as well as the heights of what is called the Shep-Karagatſh, or Temnoi Leſs, ſignifying the dark foreſt, near the fortreſs of Pregradnoi Stan, are parts of the ſame mountains from which the original brooks of the Yegorlyk derive their origin, at a very ſhort diſtance from the river Kuban. Below Protſhnoi Okop theſe lofty eminences again decline along the Kuban, and

and are ſucceeded by a level, but elevated country, from which, at a diſtance of ſcarcely five verſts from the banks of that river, the two rivulets Tſhelbaſh and Beiſſu riſe in a miraculous manner, and ſeparately empty themſelves into the ſea of Azof.

This branch of the promontory of the Elburus * is particularly remarkable on account of its influence on the weather, climate, and vegetation of thoſe countries which are ſituated to the North-weſt and South-eaſt. The whole plain towards the Kuma, and eſpecially the vicinity of Georgiefsk and Alexandrofsk, is ſo completely protected by this high ridge from the northern and north-weſtern winds, that its inhabitants enjoy very mild winters, ſeldom have an opportunity of travelling on ſledges, and even in the month of January make no addition to their uſual dreſs. Such winters are likewiſe peculiar to the mountainous parts of Taurida. The ſpring in theſe regions begins very early; the heat of ſummer is intenſe, and the weather almoſt uniformly ſerene. All winds here are warm and dry, except thoſe which blow from the ſnowy mountains, and the valleys of the Podkuma, the Malk, and the Bakſan; whence likewiſe the fogs and rains uſually proceed to that country—In Severnoi, however, which is but a ſhort diſtance from the above-named mountains, the winter is frequently

* If we examine, by the map, the north-eaſtern tract of mountains which terminates with the Beſhtau, between the rivers Kuma and Podkuma, and follow the lofty ridge extending from the ſource of the Kuban, in a weſtern direction, over the ſprings of the ſouthern collateral branches of that river, namely, Selentſhuk, Uarp, Laba, and Shagvaſho, towards the Black Sea, we ſhall find that the tract now deſcribed is the middlemoſt of thoſe mountainous ridges which, from the Elburus, or the higheſt part of the Caucaſus, ſpread in a northern direction towards the plain.

much longer, and more ſevere; for here the ſnow often falls to the depth of an arſhine, and covers the country for a longer period of time: tempeſts from the Weſt and North-weſt are uncommonly frequent, and occaſion cold ſeaſons. It is even aſſerted, that on this ſide of the mountainous tract there has ſometimes been a rainy ſeaſon, while the inhabitants of the oppoſite country have experienced very fine weather. During our journey over this mountainous ridge, we likewiſe met with much rain, that continued till we had paſſed a region over which the clouds had apparently taken a permanent ſtation. From this ſhort account it is evident, that the local ſituation of places in a great degree contributes to the viciſſitudes of the weather, and that the rules adopted to prognoſticate ſuch changes are ſubject to error and uncertainty.

We ſtopped all night in the fortreſs of Severnoi, a place built with tolerable regularity: the inhabitants were then employed in erecting a new church of wood. Gentle ſhowers of rain fell during the whole night, and were ſucceeded in the morning by a thick fog, through which we were obliged to continue our journey on the twenty-fifth.

After leaving the fortreſs, we proceeded down a conſiderable declivity to a dale with elevations on each ſide, where we remarked calcareous ſtrata that formed the baſis of the horizontal beds of ſand-ſtone. In the valley we croſſed the narrow but deep rivulet Tſhetſhora, in the Tartar language called Dſhekinly, which accompanied us through the whole dale on our left, running in a ſerpentine direction as far as the Kalaus. Twelve verſts farther we reached the Kalaus, over which are built two bridges: on its banks is a poſt-ſtage, and

on

on the heights a redoubt, defended by ſeveral ſoldiers and Kozaks; in its vicinity there is a ſmall village inhabited by invalid ſoldiers. This rivulet derives its ſource from the eminence called Vorofskoi Leſs, but has ſcarcely any current at preſent; it runs in a narrow though deep bed, from two and an half to three fathoms broad, and has turbid but taſteleſs water.—In this neighbourhood, and for ſeveral verſts of our road, there had been no rain, but the duſt was moiſtened by the preceding fog, which, as we advanced, entirely diſappeared.

At a ſhort diſtance from the Kalaus, after travelling over a mountainous country, we arrived at a declining plain, where we again met with a few marine plants, for inſtance, the *Statice Limonium*, *Artemiſia maritima*, ſome ſpecies of the *Chenopodium*, and, in great profuſion, the *Amaranthus Blitum*. We croſſed on this plain the ſmall rivulet Gorkaya, or the bitter brook. On advancing farther, the country, after a gentle riſe, again declines and forms a ſtill lower valley, in which we found a ſmall lake of bitter water, and ſeveral ſaline tracts. The valley itſelf, however, is ſurrounded with eminences of limeſtone, over which we paſſed, and rather abruptly deſcended to a dale where the rivulet Yeſhpagir takes its ſource from ſeveral ſprings, and runs into the Kalaus. This place being a regular poſt-ſtage, a piquet was ſtationed in its vicinity, at the diſtance of thirty-three verſts from the former. On the banks of the above rivulet, we obſerved the *Inula Helenium* growing in abundance. The glens between the heights were but ſparingly covered with wood, while, in the lower grounds, eſpecially in ſaline places, we took notice of the *Chenopodium maritimum*, the *Atriplex laciniata*, and a few other marine plants. After leaving this

this low country, croſſing over a height, and travelling about fifteen verſts, we paſſed two ſteep and high ridges of the horizontal mountains: but, on proceeding twelve verſts farther, we met with a ſtill more conſiderable declivity of thoſe mountains, near the village Nadeſhda, which had been peopled with new Ruſſian ſettlers, emigrated from the government of Kurſki: in the vicinity of this place the ſmall rivulet Mamai runs in a ſerpentine direction, and afterwards falls into the Atſhla, near the village Mariinſka.

As far as we could obſerve along our road, the ſpecies of foſſil compoſing theſe horizontal mountains conſiſted of a grey, porous, and ancient lime-ſtone, preſenting here and there impreſſions of various ſhells. The black vegetable mould was almoſt uniformly mixed with gravel and cylindrical pebbles; a compoſition which indicates very ancient changes, or the deſtruction of former beds that conſiſted of ſoft rock-ſtones.

After croſſing the rivulet Mamai, we at length travelled over gently riſing heights to the fortreſs and county-town of Stavropol, thirty-three verſts diſtant from the Yeſhpagir: the former place is ſituated on a level eminence, near the ſource of the rivulet Atſhla; it is irregularly fortified, and in its vicinity is a populous Slobode, inhabited by Kozaks and peaſants.

We were detained in Stavropol till the cloſe of the night, before we could receive the requiſite number of horſes for the proſecution of our journey, as every perſon we accoſted appeared to be in liquor.

The intoxicated Kozaks who were our guides, inſtead of conducting us to the more convenient though circuitous high-road, led us directly down the precipitate glen interſected by the

the rivulet Atſhla, where we remained at leaſt an hour, before we could extricate ourſelves; which fatigued the horſes and occaſioned conſiderable damage to our carriages.—Having, however, overcome theſe difficulties and croſſed the rivulet, we proceeded, during a part of the night, along the woody dale to the fortreſs of Moſkofskaya, where we ſtopped till the following morning: in this fertile and delightful valley are built the two villages Mikhailovka and Pelagiada: it is watered by the rivulet Taſhla, which takes its riſe here, and empties itſelf into the Yegorlyk. In this vicinity, as well as in the countries we paſſed ſince the middle of Auguſt, there had been no rain except what had fallen on the preceding day. The road which, as far as Stavropol, generally ran in a weſtern direction, now took a northerly courſe, and continued for the moſt part between N. W. and N. N. W.

The fortreſs of Moſkofskaya is erected on a gentle elevation between the two rivulets Taſhla and Yegorlyk, at a diſtance of fifty verſts, in a ſtraight line from the Kuban. On a declivity below the fort, there is a place called Stanitz, built by the wealthy Kozaks of Khoperſki, on the banks of a ſmall rivulet which falls into the Taſhla: above its ſource we remarked conſiderable rocks extending to the North, and gradually diſappearing; they were a continuation of the horizontal ſtrata before mentioned. Behind the heights flows the large Yegorlyk, which interſects them at its union with the Taſhla, in the vicinity of Donſkaya Krepoſt. Theſe eminences, after extending along the Taſhla, and frequently incloſing this rivulet between high banks, likewiſe declined towards the level ſteppe, on the right of our road.

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On the twenty-ſixth of September, we croſſed the ſmall rivulet which runs along the Stanitz, at a ſhort diſtance from a corn-mill eſtabliſhed on its current: we continued our journey on the right bank of the Taſhla, which is but thinly covered with wood, till we arived at Donſkaya, a ſtage of ſeventeen verſts. The ſoil of this neighbourhood, as well as on the ſucceeding ſteppe, is uncommonly fertile: it uniformly conſiſts of a black vegetable mould, frequently above an arſhine deep, and abounds with the moſt luxuriant plants. Along the road we obſerved ſeveral ſpecies of the *Chenopodium* and *Amaranthus Blitum* growing thick on particular ſpots; and the *Daucus mauritanicus* was likewiſe abundant in moiſt ſituations.

On viewing the heights extending along the Taſhla, we perceived at a diſtance thoſe rough hewn ſtatues which are commonly placed on ſepulchral hills, in the ſteppes in the vicinity of the Yegorlyk, Kalaus, and Yei, as well as between the rivers Dniepr and Donetz. If we may judge from the coſtume and form of the face, they uniformly appear to have been made by a people related to the Mongolians, who formerly inhabited thoſe countries. Theſe ſtone images are generally of a ſimilar nature, and almoſt uniform conſtruction, thoſe in the vicinity of the Caucaſus excepted; the difference of the ſexes being their only diſtinguiſhing character: they are ſcattered in the country extending from the Kuban and the Terek to the valley bordering on the Manytſh, and likewiſe to the rivers Donetz and Dniepr. All theſe ſtatues are erected on moderately large ſepulchral hills, and their faces are expoſed towards the Eaſt. Ruyſbroek, or Rubruquis,

Rubruquis *, the monk, aſſerts in the tenth and fourteenth chapters of his journey to theſe countries, that the monuments in queſtion belong to the tombs of the Kumanians, a wandering nation of that age: he calls them by the name of Koman-Kaptſhat, and probably underſtands by this denomination that they are the pagan Uluſſians of thoſe times, who were of Mongolian origin, or perhaps Tartars mixed with the latter. But it appears from his deſcription, that he has erroneouſly confounded them with the Alanians; a people who, according to other paſſages of his journey, might more likely be ſuppoſed to be the modern Abaſſines, had I not already obſerved in the preceding part of my Travels, that they were one of the Caucaſian nations, called the Kiſtes. In the paſſage here quoted,

* Rubruquis, chap. x. trad. de Bergeron, p. 19.—" Pour les Comans, ils ont " coutume d'élever une motte de terre ſur la ſépulture du mort, et lui dreſſent " une ſtatue, la face tournée à l'orient, et tenant une taſſe à la main vers le nom- " bril. Aux riches et grands, ils dreſſent des pyramides, ou petites maiſons " pointues; et j'ai vu en des endroits, de grands tours de briques, et en d'autres " des maiſons bâties en pierres, encore qu'en ces quartiers-là on n'y en trouve " point. J'ai vu auſſi une ſépulture où ils avoient ſuſpendu ſeize peaux de cheval " ſur de grandes perches, quatre à chaque face du monde, puis ils y'avoient " laiſſé du Coſmos (Kumyſs) pour boire, et de la chair pour manger. Cependant " ils diſoient, que ce mort avoit été batiſé. J'y ai remarquai d'autres ſépultures " vers l'orient: c'etoient de grands quarrés de pierres, les unes rondes, les autres " quarrées; puis quatre pierres longues, dreſſées aux quatres coins à l'entour de cet " eſpace."—It is evident that the laſt-mentioned tombs were erected by the Abaſſinians, but the ſuſpended horſe-ſkins belonged to the heathen Buretas, or Tartars, who emigrated from Siberia under the leaders of Dſhingiſkan, and the pyramids were ſepulchral chapels built by the Mahometan Tartars, ſo that conſequently all the monuments here indiſcriminately deſcribed, originated from different nations. This monaſtic traveller alſo ſuppoſes thoſe ſtatues to have been erected by the Kumanians, merely becauſe they inhabited this country in the age in which he wrote; though it is more probable that they were placed there by ſome more ancient people, who ſubſequently had either emigrated or been expelled from theſe regions.

and particularly towards the concluſion, he alſo deſcribes ſuch tombs on the eaſtern ſteppe, as are ſtill erected in modern times by the Abaſſines and Circaſſians.—There are but few ſepulchral hills without ſtatues, or erect ſtones, to be met with on theſe ſteppes, though we find them not only more frequent, but of a larger ſize, in the vicinity of the Kuma and the Volga. The ſtone figures, on the contrary, which are very numerous around the coaſt on the Sea of Azof, are nowhere diſcoverable on the laſt-mentioned ſteppes. On the banks of the Yeniſei, erect tomb-ſtones, with roughly formed human faces, are not uncommon *; but on the Irtiſh and the Samara they ſeldom occur, and in general ſtand ſingly, as if the nation by which they were placed, had only travelled through that country. It is farther remarkable, that all the ſtone figures in the more eaſtern countries are hewn in a very rugged and ſhapeleſs manner, ſo that they frequently repreſent an uncouth maſk; but in the plains around the Sea of Azof, eſpecially in thoſe ſituated to the North of that Sea, there are ſo many evident proofs of imitative talent, that the character of the face, the limbs and the coſtume of both ſexes, together with their ornaments, may be diſtinctly traced. As ſuch figures are frequently met with in thoſe regions, it may be reaſonably inferred, that the nation by which they were erected, muſt have lived there for a conſiderable ſpace of time.

In the eleventh Vignette are repreſented four female figures, marked, *a*, *b*, *c*, *d*; and two female ſtatues, denoted by the letters *e* and *f*. The former uniformly wear on their heads a

* See my former Travels, part iii. page 357.—Compare alſo, in the ſecond part, page 504. and in the firſt part, page 222. of the German edition.

ſmall,

ſmall, round cap, which covers only the top of the head; an article of dreſs ſtill in uſe among the Mongolian nations: the hair on the crown of the head is divided into three plaits, which unite at their extremities, and hang down behind; but the lateral circumference of the head is repreſented in a ſhorn ſtate. The ſhort dreſs, however, as well as the ſtraps and the boots, are not in common uſe among the modern Mongolians. The female figures, which are diſtinguiſhable by their dependent breaſts, are exhibited in caps, ſuch as are not obſervable among any of the modern nations inhabiting the North of Aſia. But the necklaces of corals, and the plaited hair, are ſtill Mongolian cuſtoms. Both ſexes have broad, flat faces, reſembling thoſe of the preſent Mongolian race, and all the ſtatues hold before them, with both hands, a cup, or ſmall pot, ſimilar to that with which the idols of Tybet are repreſented; but the allegorical explanation of which cannot be eaſily conjectured. If we were to judge from the features expreſſed in the countenance of theſe ſtatues, it is highly probable that they are of Mongolian origin: and if the Hunnians are a tribe of that people, as appears from the analogy of ſeveral Hunnian names, as well as from the deſcription of their perſons, tranſmitted to us by the Greek hiſtorians, theſe monuments may be fairly aſcribed to them. Perhaps thoſe Hunnians were the horde of the Oelotes *, which, according to a popular tradition among the Kalmuks, in ancient times emigrated to the Weſt of Europe. AMMIANUS MARCELLINUS mentions theſe ſtone figures as

* See Pallas's Sammlungen Hiſtoriſcher Nachrichten, &c. or Collections of Hiſtorical Accounts relative to the Mongolian Nations, Part I. page 6.

being found about the banks of the Pontus, and compares the features of their faces to thoſe of the Hunnians.

The ſtatues ſtill preſerved on the plains near the foot of the Caucaſus, and of which GULDENSTADT has given us a ſpecimen with a Greek inſcription, in the ſecond part of his Travels, plate II. were probably formed by a more modern nation, as they exhibit a very different coſtume. Thoſe which I have repreſented are evidently of a more ancient date, but none of them bear any inſcriptions, and may fairly be aſcribed to the old Hunnians; while the others appear to belong rather to the Chriſtian era of the nations of the Caucaſus, and to have been placed there, perhaps in the ſame century when the ſtone croſſes were erected in theſe regions.

After leaving Donſkaya, we no longer met with eminences, and obſerved only an open plain or ſteppe before us, entirely deſtitute of wood. On the half-way to the redoubt Beſopaſnoi, a diſtance of eleven verſts, on the left of our road, we took notice of a broken ſtatue placed on a moderate ſepulchral hill: it evidently appeared to be the fragment of a female figure, was upwards of two arſhines high, above the natural ſize, and of very rough workmanſhip. The lower extremities of this figure were buried in the ſoil, and the diviſion of the thighs only could be diſcovered above the ſurface. This monument conſiſted of a white calcareous ſtone, compoſed entirely of broken ſhells cemented by nature, and uncommonly hard, ſuch as is uſually met with in the neighbouring heights.

Beſopaſnoi is twenty-two verſts diſtant from Donſkaya. In the vicinity of Pregradnoi Stan, about two verſts and an half from

from the redoubt, we obſerved likewiſe on our left, a more conſiderable ſepulchral elevation, from which a ſtill larger coloſſal figure had fallen down, and now lay on the ground without its head.—Beyond Donſkaya all the redoubts and poſt-ſtations were guarded by Kozaks of the Don.

Pregradnoi is a redoubt, below the union of the Taſhla with the Yegorlyk, twenty-five verſts diſtant from Beſopaſnoi: the river near this place has been provided with an indifferent bridge: after croſſing it we travelled over a ſteppe uniformly covered with black mould and fine verdure, till we arrived at the redoubt Medveſhekurganſkaya, twenty-three verſts from the laſt ſtage. About half way thither, on our right, we noticed a ſtone croſs four arſhines high, with ſhort arms; it was compoſed of a calcareous ſtone ſimilar to the former. On its weſtern ſide there is a Neſtorian croſs likewiſe of ſtone, and beneath it an inſcription almoſt obliterated, of which there are legible only the words IBAHΨN, and at the concluſion ΔΩPOΥC.—The ſteppe beyond Moſkofskaya produces the *Crambe orientalis*, and in ſtill greater abundance the *Statice Coriaria*, which may be collected here more conveniently, and at leſs expence, for the purpoſe of tanning.

Cloſe to the left bank of the clayey and fetid Yegorlyk, and near the redoubt called Medveſhekurganſk, we obſerved two large ſepulchral hillocks. The rivulet here forms ſtagnant, black miry marſhes covered with ſedge, but nevertheleſs contains pike, perch, and ſmall carp; nay, it is ſaid that even ſalmon are taken there, which arrive with the currents in ſpring. Pheaſants have alſo been met with near the Yegorlyk, as well as in the vicinity of the Yei, and along the Sea as far as

Azof,

Azof, but they entirely diſappeared as we approached the river Don.

The night was tempeſtuous and the wind blew from the South-Weſt and North-Weſt: it was accompanied with rain, which alternately continued on the 27th of Septem[illegible] laid a very troubleſome black duſt.

The ſteppe ſtill continued level and contained a [illegible] and black ſoil for a diſtance of twenty-two verſts, as far as Veſtofſkoi, or Kalaly, a redoubt eſtabliſhed on the place where the exſiccated rivulet enters into the ſteppe. At this poſt there was ſtationed a commanding officer of the ſtaff with twenty ſoldiers, as many Kozaks and two pieces of cannon, for protecting the tranſports of proviſions. Near this redoubt, on a ſepulchral elevation, is a male figure hewn of ſtone, and about three arſhines high, which has been carried thither from another country watered by the Yegorlyk.—The ſprings dug here afford a brackiſh and unwholeſome water, on account of the ſaline mire lying immediately below the black ſoil: I have alſo obſerved a ſimilar ſtratification in ſeveral other places. A ſmall colony had nevertheleſs been formerly eſtabliſhed here; but it was deſtroyed during the late commotions among the Circaſſians.

On quitting Kalaly, the country bordering on the redoubt Verkhna-Yegorlytzkaya, or Letnitzkaya, diſtant twenty-two verſts, becomes rather hilly, with alternate glens: this change of ſurface continues from the redoubt before mentioned, as far as the bed of the dry rivulet Raſſypnaya, and farther down to a dry glen, on the declivity of which the *Teucrium Chamæpithys* was ſtill in full flower. At a ſhort diſtance to the Weſt of this country,

country, there ariſe ſeveral rills of water, from which the Yei takes its origin.—A little way farther, a level ſteppe again ſucceeds, and extends to the redoubt Peſtſhanye Kopani, the ſand wells, or Peſtſhanokolodeſnaya, a diſtance of thirteen verſts. Here ſprings have been dug in a dry glen, which conducts the ſnow waters into the rivulet Raſſypnaya; but they do not afford good water, becauſe the fine miry ſoil, being of no conſiderable depth, forms in the open air incruſtations of ſalt, by which the veins of water are in every direction rendered brackiſh.

This lower ſtratum of a plain, which in other reſpects indicates fertility, as it preſents a fine verdure, appears to have been originally ſediment depoſited by the ſea. As, however, the upper part of this neighbourhood is more elevated than the low country of the Manytſh, and not ſo barren as the ſteppe which was formerly covered by the waters of the Caſpian Sea, but on the contrary, being overſpread to a conſiderable depth with a rich black mould, and graſs, I cannot explain this difference in any other manner, than by ſuppoſing this plain to have been a boundleſs beach of the old ſhore of the ſea, round the former mouths of the Kuban; or elſe that they were large valleys inundated at various times by the ſea, ſimilar to thoſe near the Caſpian Sea, before mentioned. Under the ſurface of this ſoil, the mud impregnated with ſalt has remained after the ſea water had retreated; and by the diſſolution of the quantities of ſedge and other plants, the thick ſtratum of vegetable mould has conſequently been formed. Indeed, this black upper ſtratum more reſembles a marine mud, than the ſoil produced in foreſts; as there is not the ſmalleſt

trace

trace of wood diſcoverable in theſe regions. The ſteppe, on deſcending along the Yei, becomes progreſſively more ſaline, and we obſerved here and there round ſalt-pits, ſimilar to thoſe we met with when travelling over the Caſpian ſteppe; but that the ſuperficies of this ſoil has not remained equally ſaline and ſterile as we found it on the ſteppe juſt mentioned, appears to ariſe from the following cauſes:

1. Becauſe the ſea could, on its decreaſe, retreat from the uniform ſurface of the ſoil, without depoſiting any ſediment.
2. On account of this uniformity, the ſurface of the ſoil has gradually been waſhed and edulcorated by the ſnow and rain waters, ſo that the ſaline particles have remained only in the lower ſtratum. On the contrary, the uneven parts of the ſurface, and ſand banks on the Caſpian ſteppe, have retained the ſea water in large baſons, and on its evaporation preſerved the ſalt in a concrete form, even to the preſent time, on their argillaceous beds. Hence alſo vegetation, being checked by the dry and ſandy nature of the ſoil, has not contributed to cover the ſurface with black mould, except in ſuch places as had been purified of their ſaline ingredients, and occaſionally moiſtened by the permeating waters. On the other hand, the ſuperficies of the ſteppes of the Don, being almoſt correſponding to the level of the water, has been more frequently inundated, and conſequently rendered more advantageous to vegetation: hence alſo the ſhells and other veſtiges of the ancient ſea have here been deſtroyed at a more early period, and converted into ſoil, while they have been

been uniformly preſerved on the dry ſteppe of the Caſpian Sea. In the ſequel I ſhall take an opportunity of extending my obſervations on the former ſtate of theſe countries, as well as the ancient ſhores of the Black Sea, and that of Azof.

Wild pigeons and chaffinches frequently appeared in large flights on theſe ſteppes: we alſo here and there obſerved buſtards, which the Kozaks of the Don expertly attract by means of a ſmall car covered with reeds, and imperceptibly puſhed forwards, ſo as to ſhoot the birds with a gun.

Although the evening of the 27th of September was ſerene, with a cold north-weſterly wind, and the ſtarry horizon was illumined, even above the zenith, by a powerful *aurora borealis*, yet the riſing clouds of the night were again accompanied with rain, which, towards morning, was diſſipated by a continued tempeſt, ſo that the following day, though brightened by ſunſhine, remained cold and tempeſtuous.

The level and more elevated ſteppe, on which the rain had rendered the road very unpleaſant, continued uniform as far as Srednii, the middle, or Vonutſhii, the fetid Yegorlyk; a diſtance of thirty verſts. At this place we found only a barrack for the Kozaks of the Don who conduct the poſt, and a miſerable inn. The fountain near the bank of the brackiſh rivulet contains a potable but thick water. The plain extends, without interruption, as far as the ſmall rivulet Graſnukha, or the muddy rivulet, which falls into the Kuga-Yei, or the Yei covered with ruſhes. Between this rivulet and the Nyſhnii Yegorlyk, twenty-ſix verſt diſtance, the country has a flat but elevated ſurface; and to the ſtation

of Kagultinſkoi, ſixteen verſts farther, it is partly of a wave-like form, and partly level. The glen near which the poſt-houſe is ſituated, contiguous to ſprings dug in a fat black mould, leads to the Kagalnik, a river ariſing in this country, and taking its courſe towards the Sea of Azof, on the right of the great road. On account of ſome ſloe-trees which were formerly found near this place, the glen before mentioned has received the name of Kagultinſkoi; in the Kalmuk language, Kogultu.

On the 29th of September we arrived at the dry rivulet Metſhetna, called alſo Otnoſhna Kagalnitzkaya, where we again met with a poſt-ſtation and an inn. Our journey to this place, which is eleven verſts diſtant, was attended with a continual rain: we croſſed three deep glens which join the Kogultu, and then an elevated ſteppe. A Tartar houſe of prayer called Metſhet, which is erected on the banks of the Manytſh, at a diſtance of thirty-five verſts, appears to have furniſhed the name of Metſhetna to this ſtation*. On the right, towards the Manytſh, the ſteppe inſenſibly riſes till it acquires the form of a ridge. In the low grounds, as well as on the heights, the black ſoil is uniformly tough and fat, ſimilar to moor-earth; and it continues of the ſame quality as far as the ſtation Khomutetzkoi, twelve verſts diſtant, near which place ſprings have been dug in a glen leading to the next poſt-ſtation, called Kagalnik, eighteen verſts from the former. The ſteppe is as it were excavated with ſimilar glens, extending to the laſt-mentioned ſtation, which is likewiſe ſituated in a glen: this place is celebrated in hiſtory, on account of events that occurred in more ancient times,

* See Guldenſtadt's Travels, Part II. pages 42, 43.

when

when the Turks were in poſſeſſion of Azof; it has ſince that period preſerved the name of Oſſadnye Terni, or the buſhes of the beſieged. Near this ſtation we were agreeably ſurpriſed with a view of a military camp, pitched with the greateſt regularity. It contained a body of Chaſſeurs under the command of Lieutenant-Colonel Bakunin, who was ordered to proceed from Taganrog to the New Lines of the Kuban; but, in conſequence of ſome diſturbances which had broken out at Tſherkaſk, he received orders to halt, till further inſtructions. We now croſſed the water of the glen, which forms the true beginning of the Kagalnik. The diſtance from this place to the ſtation, called Batai, is computed to be ſixteen verſts.

On proceeding along the glens which contribute to form the Kagalnik, the higher ſteppe, which appears like flat ridges, almoſt imperceptibly becomes lower towards the Don and the Sea of Azof: here the falſe arm of water, called Podpolnaya, branches into a low country inundated by the river Don at high floods, and has ſcarcely any banks: near this water is ſituated, in a valley, the laſt poſt-houſe on the road to Tſherkaſk, at a diſtance of ſeventeen verſts from the Kagalnik. From theſe ſucceſſive inundations it may be explained, why the almoſt uniform ſteppe we paſſed from the Yegorlyk to this place is ſo little elevated above the Sea of Azof; and it gives additional confirmation to what I have ſaid before, with reſpect to the ancient condition of this level country.

Immediately before the Podpolnaya we obſerved ſeveral ſmall ſepulchral hillocks, and one of a conſiderable ſize, around which the Kozak Tartars of Tſherkaſk have their places of interment. Some of the more recent graves are covered with

tomb-ſtones, moſt of which conſiſt of rough pieces of conglomerate ſhells. Among theſe was one of white marble, ſimilar to that of Paros, which appeared to have been a fragment of architecture; and another piece of flat marble, on which an inſcription had been neatly cut in Arabic characters. Theſe fragments have probably been tomb-ſtones which were conveyed by ſea to Azof.

From the laſt regular poſt-houſe, on the banks of the Podpolnaya, we were obliged to travel ſeven verſts entirely over a low country to the river Don, which we croſſed by a bridge made of floating beams joined together by chains, and which conducted us to the city of Tſherkaſk. The prevailing tempeſt from the ſea agitated and bent the floating bridge on this broad river in a dreadful manner: this, together with the noiſe of loaded waggons drawn by oxen, forming as it were a continued chain, was ſo impreſſive about twilight, that we apprehended every moment the deſtruction of the bridge: ſuch a misfortune indeed ſometimes happens, in conſequence of violent ſtorms; eſpecially as the bridge is ſcarcely broad enough to allow two carriages to paſs each other; and as it is not provided with railings to prevent the accidents of falling into the river. Thus we arrived in the evening at the capital of the Kozaks of the Don; a city which during the laſt twenty years has been conſiderably enlarged and ornamented with many beautiful private houſes, inhabited by Kozak officers who have been inveſted with honours and titles. But the narrow and obſcure ſtreets of this city, the confined ſituation of its buildings, moſt of which have not even the convenience of a yard, and the annual inundations in ſpring, all conſpire to render

render it extremely unwholeſome, and for ever to prevent any effectual improvements. I likewiſe cannot ſpeak favourably of the moral character of its inhabitants, whether male or female. A continual habit of good living, indolence, and debauchery, the natural conſequences of the ſuperfluity, which the excellent poſſeſſions of this free militia afford, have thoroughly corrupted their manners, and their antient ſimplicity has been almoſt entirely ſuperſeded by luxury. Here, as in other countries, the capital is the ſeat of corruption, which gradually infects the maſs of the people. The diſtinctions and privileges, which have in later times been too liberally granted to the higher ranks, have rendered theſe, as well as the people, proud and inſolent. The former, who have eſtabliſhed villages on the beautiful tracts of land granted to them on the eaſtern bank of the Don, and encouraged vagrants to ſettle there, endeavour to oppreſs the poorer claſs of inhabitants, by impoſing upon them all the burthens of military duty; though they ſpare the more wealthy, whoſe common intereſt it is to deprive the latter frequently even of the payments due for their ſervices. The diſcontent reſulting from this conduct is conſtrued by their ſuperiors into want of obedience and mutiny, ſo that it is productive of additional oppreſſion. Thus a people naturally well diſpoſed, and who have hitherto been very uſeful to Ruſſia in furniſhing the empire with light troops, are continually more injured in their free conſtitution, and daily ſhew greater averſion to military ſervice; while their affluent governors live in the moſt voluptuous indolence and immorality.

The only branch of huſbandry, which has been actually improved by the wealthy among the Kozaks of the Don, is the wine;

wine; the production of which, during the laſt twenty years, has not only been conſiderably increaſed, but its cultivation is likewiſe placed on a more reſpectable footing; becauſe it contributes towards the indulgence of their ſenſuality. The vine thrives rapidly above Tſherkaſk, as the heights near the right bank of the Don are well ſituated for its growth, and extend to the vicinity of Patiſbanſkaya Stanitza, ſo that they lie in about the ſame latitude as Tzaritzyn. In a more ſouthern ſituation near Taganrog, the grapes, on account of the cold ſea winds, never arrive at a proper ſtate of maturity; and therefore do not afford a good muſt. On the contrary, the white wines of Raſdorof and Tzymlanſki, which are ſo much eſteemed near the Don, and reſemble the red Italian wines, are both ſold at a high price, even at Moſco. The common black grapes growing in the neighbourhood of the Don produce a ſpirituous wine, which is of a flavour ſuperior to thoſe obtained at Aſtrakhan, and in the environs of the Terek: theſe grapes are tranſported by water, from the villages ſituated near the upper Don, to Tſherkaſk where we found the Greek merchants induſtriouſly employed in preſſing them. It deſerves, however, to be remarked, that this wine is indebted for its excellence to a ſecret addition of raiſins, as well as to the juice of the bramble-berry, and honey; ingredients with which the muſt is uſually boiled. The advantage poſſeſſed by the pure and unadulterated wines made near the Don, may be attributed to two principal cauſes: firſt, to the early maturity of the ſpecies of raiſins uniformly cultivated there; and ſecondly, becauſe all the vineyards are planted on the ſouthern declivity of the heights and banks of the river Don, in a good marly and calcareous

calcareous ſoil, and are not watered like thoſe in the iſles near Aſtrakhan, which are impregnated with ſalt. Many improvements have alſo, in later times, been made by the inhabitants of thoſe countries, in the management of wines; and there is no doubt that they will, at a future period, produce that liquor of an excellent quality. Although the produce of that commodity is at preſent too inconſiderable, and its ſale too rapid, to encourage the natives to preſerve it till it is of a proper age, yet during the preſent extenſion of the Southern Empire, and particularly by the ſupport given to population and the culture of the vine on the mountains of Taurida, this branch of productive induſtry, in the courſe of a few generations, might be ſo much promoted, that the interior of Ruſſia, and Moſco itſelf, could altogether diſpenſe with the importation of foreign wines.— The places where the vine was firſt cultivated on the banks of the Don, are, Beſergenefskoi, Raſdori, Melekhofskoi, and Solotofskoi. Its cultivation, however, has of late conſiderably increaſed, as in the year 1772 there were only from ſeventy to eighty hogſheads, or caſks, of forty eimers each, preſſed along the whole extent of the Don; and fifty of theſe were produced in the village of Raſdori alone. The manner, however, of planting vineyards near the Don, as well as in the vicinity of Aſtrakhan, and on the banks of the Terek, is attended with great difficulties, becauſe the vines, to protect them againſt froſt, muſt be buried during the winter, and dug up again in the ſpring; a proceſs which in the ſouthern valleys of the Crimea, and in almoſt the whole of this peninſula, is not neceſſary.

The

The culture of madder might alſo be of great importance to the Kozaks of the Don, eſpecially as it is not incompatible with an unſettled military life. At preſent, however, they only attempt to procure the wild roots of this plant for the purpoſe of dyeing; but after a whole day's labour they ſeldom obtain more than two pounds weight; whereas this uſeful article, if cultivated in regular fields, would be attended with much greater advantage.

The unhealthy ſituation of Tſherkaſk, on the iſles of the Don, may be eaſily conceived; as the whole town, a few principal places contiguous to the cathedral excepted, is inundated by the ſpring-tides from the beginning of April to the end of June, inſomuch that the ground-floors of the houſes built of wood, and which generally ſerve as ſtore-houſes for containing proviſions, are entirely under water, ſo that the inhabitants are obliged to employ boats in maintaining their intercourſe with each other.

In a clear evening, the northern promontory of the Caucaſus may be diſtinctly ſeen from Tſherkaſk; the ſummits of the ſnowy mountains alſo appear glimmering and obſcure, though, in a direct line from thence to the river Kuban, the diſtance is computed to be upwards of two hundred and forty verſts, and conſequently three long days' journey on horſeback. The viſible part of the mountains appears to be that branch which extends above the Laba, and takes its direction towards the ſea.

Tſherkaſk conſiſts of eleven Kozak ſtanitzes, or hamlets; and the whole body of the Kozaks of the Don inhabits one hundred ſuch ſtanitzes. The village of Akſai, which is ſituated

ſituated fifteen verſts below Tſherkaſk, is included within the juriſdiction of that town. The Tartar Slobode, which forms a part of Tſherkaſk, conſiſts of one hundred and fifty families. Theſe Tartars have reſided here for many ages, and are ſaid to have been the primitive inhabitants of the place. They enjoy the ſame priviledges as the Kozaks, are a wealthy people, and ſtill preſerve their language as well as their religion.

The city of Tſherkaſk has an extenſive trade by ſea, and might become a ſtill more important commercial place, if the general quarantine at Kertſh, which has long ſince been propoſed for all the ports ſituated on the coaſt of Azof, could be effectually eſtabliſhed. The ſmall veſſels uſed in the navigation of the river Don, might convey, in abundance, to Kertſh all the articles for exportation, ſuch as grain, iron, maſts, timber, ſail-cloth, hemp, tallow, and butter. Theſe goods coming by the Volga and the Kama, near Katſhalinſkaya Stanitza, would have but a ſhort diſtance to be carried by land, and might then be tranſported entirely by water through the Vorona, and its rivers, into the Don. Large veſſels from the Mediterranean might proceed directly to Kertſh, and take in cargoes of the above-mentioned articles, by which the charge of freight would be conſiderably diminiſhed. All the ports of the Mediterranean, which, particularly in naval wars, procure the Ruſſian products with incalculable expence and great danger by the Baltic Sea, would excluſively reſort to this place; a change which might be attended with great advantage to the ſouthern provinces of Ruſſia. On the contrary, the commerce of Taganrog is far from being beneficial, as the navigation on the Sea of Azof, as well as that of the Boſphorus, on account of

their ſhallow waters, can be carried on only in ſmall merchant veſſels; and as Taganrog itſelf obtains the goods before mentioned only by boats navigated on the river Don.

The dreſs of the Kozak women and girls at Tſherkaſk, and in the neighbouring ſtanitzes, differs in every reſpect from that worn above the Lines of Tzaritzyn.

It is a complete deshabille of a peculiar kind, as is obvious from the twenty-third Plate, where a matron and a girl are repreſented. In their domeſtic employments they go barefooted, and wear trowſers, which hang down as low as the ancles. When in full dreſs, they wear ſlippers and ſtockings of yellow morocco, in the latter of which they tuck the extremities of their trowſers; white linen is ſcarcely ever uſed by them, except among the poor. The ſhifts are commonly made of dyed cotton, or Aſiatic ſilk ſtuffs, either of a yellow or blue colour. That part of the female dreſs which is viſible under the gown, as well as the expoſed part of the ſleeves, together with the neck-cloth, is generally made of muſlin, but the other articles conſiſt of an inferior manufacture.

About thirty or thirty-five years ago the women uſually wore large triangular head-dreſſes, which were nearly eighteen inches in height, and of a ſimilar breadth below, when meaſured from one angle to the other. At preſent, the head-dreſs, in general, correſponds with that repreſented in the plate; and thoſe before mentioned are worn only in the vicinity of Severnoi Donetz.

I ſpent only one day, namely, the 30th of September, at Tſherkaſk. On the firſt of October, the weather having again become fair, I proceeded on my journey to Taganrog.—After leaving

leaving Tſherkaſk, we croſſed a large valley, which, in the ſpring, is for the greateſt part inundated, ſo that travellers are obliged to paſs it by a long wooden bridge. We next arrived at a collateral branch of the Don, called Akſai, which is above one hundred fathoms broad, and abounds in lobſters: it ſurrounds the iſle on which the town is built, and is provided with a floating bridge. Beyond this arm of water commences an elevated hilly country, containing a bed of a marly lime-ſtone, extending towards the declivity of the Don, but principally running in the ſame direction as the banks of the Akſai. It is evident that this high country formed the ancient ſhore of the Sea of Azof, at a time when it was united with the Caſpian; and the ancient mouth of the Don has probably been above the Manytſh.—At a diſtance of fifteen verſts, and on the declivity of this elevated country, the ſmall Kozak village, or ſtanitz, called Akſai, is beautifully ſituated, in the form of an amphitheatre: it has a handſome modern church, built of free-ſtone, and alſo an old one erected of wood. The quadrangular ſtones uſed for the conſtruction of the church, and ſome elegant houſes, are hewn from the lime-ſtone quarry on the eminence before mentioned, which conſiſts of ſhelly fragments and ſmall grained oolites, originating from an innumerable and uniform congeries of ſmall ſhells: the ſtratum is irregular, and frequently breaks in layers upwards of nine inches thick.

Immediately behind this ſtanitz, we aſcended the elevation, which is interſected by ſmall glens, and preſents two roads leading to the fortreſs of Roſtov. One of theſe is tolerably level, and runs over the flat part of the eminence; the other is nearer towards the bank of the river Don, and leads over two

deep and dangerous defiles, called Kobakovka and Kifiterinka; through the former of which runs a fmall brook, but the latter was now in a dry ftate, and uncommonly excavated.—I made choice of that laft mentioned, which conducted us, foon after paffing the fecond defile, to the new Armenian town of Nakhtfhivan, fourteen verfts diftant from the laft ftage: this was the firft Armenian town eftablifhed in the Ruffian Empire during the mild government of the great Empref CATHARINE II. and is one of the moft promifing new colonies. The induftry of the Armenians in manufactures, trade, and commerce, is fo confpicuous, when compared with thofe of the Ruffians, Greeks, and even the principal German colonifts, that a true patriot cannot fuppref the ardent wifh that the whole race of Armenians, at prefent fo much oppreffed, were tranfported from the plain of Aras to Ruffia; a change to which they, under proper arrangements, might be eafily induced to fubmit.

The town of Nakhtfhivan was founded by the moft opulent Armenian mechanics and merchants, who had emigrated after the peace of Kutfhuk-Kainardfhi, when the Ruffian troops, under the command of General SUWAROF, withdrew from the Crimea: at that time the major part of the Chriftian inhabitants, on whom the whole of the productive induftry and commerce of the peninfula depended, left that country, though probably not with unanimous confent, late in autumn, at the inftigation of the Greeks who dwelt on the fouthern mountainous fhore, and were apprehenfive of the incurfions of the Tartars. Inftead of the original huts which, contrary to the intentions of the Sovereign, the treacherous commiffaries had conftructed in the moft expeditious and wretched manner, and

and of which I have ſeen ſufficient proofs, the greater part of the inhabitants have now built neat and cleanly houſes, moſtly of freeſtone, and covered with tiles, in the manufacture of which they are ſkilful. They have, at their own expence, erected in the middle of the place a regular town-houſe, and a ſquare of convenient ſhops, where all the common productions of that country, as well as proviſions, and eſpecially bread, are expoſed to ſale: it is remarkable that the bread is here, according to the Aſiatic cuſtom, publicly kneaded and baked; a proceſs open to the inſpection of every perſon. There is a great intercourſe between this place and the neighbouring countries, eſpecially as there are but few of the lower order of mechanics among the Kozaks. The town has three churches, and in the vicinity of fort Roſtov is a well-built convent, and a handſome church, both of freeſtone. Its ſtreets are regularly divided: the houſes are at a proper diſtance from each other, and poſſeſs every convenience. Even the buildings conſtructed of wood are plaſtered with mortar, covered with tiles, and thus ſecured againſt accidents by fire.—The major part of the inhabitants are merchants or reſpectable tradeſmen, ſuch as Morocco manufacturers, excellent tailors, cartwrights, black and white ſmiths, weavers, joiners, potters, maſons, and others. Bread of a ſuperior quality, whether of rye or wheat, is prepared in this town; though the Ruſſians themſelves are, of all European nations, the moſt unſkilful bakers. Taurida has, by the emigration of theſe ingenious mechanics, ſuffered a conſiderable loſs, which has been ſeverely felt ever ſince its conqueſt by Ruſſia. On their firſt ſettlement at Nakhtſhivan a building was erected for the dyeing of cloth.

cloth. The town is ſituated at the diſtance of one verſt to the Eaſt of fort Roſtov, on the ſame elevated plain; and, at the margin of the ſteep terrace extending to the valley, it repreſents as it were a ſuburb of the former. On the open eminence we remarked ſeveral round wind-mills, conſtructed in the Aſiatic manner, with horizontal wings, which were acted upon by the different winds, and regulated according to their ſtrength and direction, by means of a circular apparatus furniſhed with moveable tranſverſe boards: an invention the merit of which is claimed by the Armenians. In the Crimea we obſerved ſeveral of theſe wind-mills in motion, eſpecially in the vicinity of Koſlof and Eupatoria: from the repreſentation given in the twelfth Vignette, the reader may form a faint idea of their conſtruction.

With agreeable ſenſations, on obſerving the proſperous ſtate of this colony, which is apparently protected by the hand of Providence, I proceeded to the fortreſs St. Dmitriya Roſtovſkago, about one verſt diſtant; but, as GULDENSTADT had formerly deſcribed it, I purſued my journey immediately after changing horſes.

This fortreſs is much neglected, though it appears to be of importance, not only as a barrier againſt the Kozaks of the Don, but likewiſe for ſecuring the mouth of the river, as well as for collecting the toll: it lies in an open country, and has a cathedral built on a ſmall elevation, on the weſtern declivity of which is ſituated a conſiderable ſuburb, with three churches. The poſt-houſe, during the ſummer ſeaſon, is eſtabliſhed beyond the precincts of the town, and the mail is conducted by the Kozaks of the Don, whoſe territory conſiſts of

of the ſmall tract of ground on which the fort is built, together with that belonging to the Armenian Slobodes, or villages, in its vicinity.

From this place we again deſcended the ſtratified heights, and croſſed the deep valley through which the rivulet Temernik runs in a ſerpentine direction into the Akſai, or Donetz. The Armenian aſſeſſor Avramof, of Nakhtſhivan, has confined the water of this rivulet in a narrow part of the valley by a ſhort dyke, conſtructed of freeſtone; he has alſo built an excellent mill with three ſmall overſhot wheels, and eſtabliſhed a farm as well as a common inn.

After paſſing the Temernik, we proceeded over a flat elevation, which continued to riſe towards the Don, till we arrived at Mokroi Tſhaltyr, or the wet Tſhaltyr, on the banks of which is a parochial village, or Slobode, of the ſame name, belonging to the Armenians, twenty-five verſts diſtant from our laſt ſtage. This is one of the five Armenian colonies which, together with that of Nakhtſhivan, were eſtabliſhed by the huſbandmen who emigrated from the Crimea. It conſiſts of ninety houſes, ſeveral of which are built of freeſtone and clay: each of them contains, according to the Crimean manner, a veſtibule with a chimney, a cleanly ſitting-room whitewaſhed, and a bed-chamber, with a low oven: their yards have every convenience, ſuch as ſtalls for cattle, made of wicker-work, and properly covered, cellars and other offices. The church is erected of ſtone, but without a tower. Induſtry, ſobriety, and a good moral conduct, characterize the Armenian peaſants; it is however to be regretted, that their territory is too confined, and entirely deſtitute of fire-wood, as well as that uſed for the implements

implements of huſbandry; while the envious Kozaks will not ſuffer them to ſupply the want of fuel, by the ruſhes growing on the low countries near the inlets of the Don, though theſe unprincipled neighbours make no uſe of that plentiful article. The Armenians cultivate ſcarcely any other grain but wheat, ſpelt, and millet; and, as only a few of them underſtand the Ruſſian language, they are obliged to ſell theſe productions to their countrymen at Nakhtſhivan, who convey the wheat by water to Taganrog, whence it is advantageouſly exported. Among their live ſtock we alſo obſerved a few buffaloes; but this animal will not thrive in an open country, where it finds neither a moiſt paſturage, nor ſhade to protect it from the heat and vermin of ſummer, and where the winter is too cold for its conſtitution.

Of the other Armenian villages belonging to the diſtrict of Roſtov, I ſhall mention the following: namely, Koſhku, which contains ninety houſes, only one verſt and a half diſtant from Tſhaltyr; Verkhnei Koſhku, which has fifty houſes; Sultan Sala, and Neſvatai, on the banks of the rivulet Tuſlof. The whole Armenian population of this diſtrict, including Nakhtſhivan, may be computed at about ſeven thouſand perſons of both ſexes: of theſe the major part formerly dwelt in Taurida, in the vicinity of Karaſſubaſar, where they compoſed the great Slobode or village of Uortalank; to which place both old and young are extremely anxious to return.

On the ſecond of October we travelled over conſiderable ſtratified ridges, between which run the glens and rivulets called Safianova, Kamenka, and Sinavka: in all theſe, as likewiſe in ſome places near the Temernik and Tſhaltyr, we could diſtinctly

diſtinctly trace the ſtratification of lime-ſtone, which was almoſt uniformly compoſed of ſmall ſhells, or grains, reſembling oolites.

In order to erect buildings for the Brigadier of Kozaks, M. MARTIANOF, a quantity of a friable freeſtone, conſiſting of broken and half calcined ſhells, had been hewn in the Kamenka. This foſſil is obtained on an eminence, immediately below the turf, in beds of about twelve inches thick, of different degrees of hardneſs, generally of a yellow colour, and of a marly texture.

Sinavka, formerly called Donetzkoi Tſhulek, has received its preſent name from Admiral SINAVIN, who, during the former Turkiſh war, had the chief command on the Sea of Azof: he eſtabliſhed here, at his own expence, ſeveral farms, which he afterwards ſold to the above-mentioned M. Martianof. This gentleman, having augmented the population with a number of vagrants and peaſants, has founded three villages, one in this delightful country, another on the banks of the Sinavka, and a third on thoſe of the Morſkoi Tſhulek, in each of which places he has introduced an excellent ſyſtem of economy.

To the Weſt of the Don we loſt ſight of ſeveral deep-rooted plants, probably on account of the calcareous baſis of the ſoil: we alſo miſſed the *Crambe orientalis* and *Statice Coriaria;* with the roots of which the tanners of Tſherkaſk and Nakhtſhivan prepare leather for the ſoles of ſhoes; theſe uſeful vegetable productions, however, re-appear on the banks of the Dniepr. The marine plants alſo, and thoſe ſpecies of wormwood which delight in a ſaline ſoil, were no longer diſcoverable in this fertile country; on the contrary, we met with the large worm-

wood, which is not indigenous to the ſteppes we formerly viſited.

Our next ſtage of twenty-five verſts brought us near the Morſkoi Tſhulek, which, from Tſherkaſk, is the firſt rivulet that empties itſelf directly into the Sea of Azof: here the calcareous bed preſents rocky declivities, and the ſteep ſides of the valley are covered with numerous black-thorns.—The following ſtage, on the banks of the Sambek, which was charged to us for twenty verſts, does not appear to be at ſo great a diſtance: we proceeded to it over an elevated plain, the baſis of which is a calcareous ſtratum, as is obvious from its ſurface, in the vicinity of the Sambek. This is a ſmall, though important river, becauſe it forms the frontier of the Kozaks of the Don, and ſeparates the diſtrict belonging to the fortreſs of Taganrog: ſeveral villages which produce grain in abundance are eſtabliſhed here by the landed proprietors; nevertheleſs a deſætine of ground, containing two thouſand four hundred ſquare fathoms, may ſtill be purchaſed of the antient poſſeſſors for the ſmall price of half a ruble. The Sambek runs between ſteep banks, is very deep and rapid in ſpring, and abounds in fiſh. Beſides the poſt-houſe, we met here with a common tavern; and, on aſcending farther, with a farm. We were informed that veſtiges of a Tartarian building are found in the vicinity of the Sambek. From this place to the fortreſs of Taganrog, the diſtance is computed to be fifteen verſts, which we travelled on the ſame day before twilight, over an uneven ſteppe, after croſſing the rivulet Malovaya and the marſhy Tſherepakha, near which we obſerved a beautiful orchard.

Fort

Fort Taganrog, or, as it is called in the records of Chancery, Troitzkaya Krepoſt na Taganroge, is ſituated on the higheſt part of an iſthmus, which, being interſected by glens extending towards the ſea, terminates like a promontory in the bay into which the Don diſcharges itſelf: in ſerene weather the fortreſs of Azof may be diſtinctly ſeen oppoſite to this place. The neck of land is, on the ſea-ſide, as far as the bay, or Liman of the Mius, divided by an entrenchment, which is occupied by a Saſtava, or a guard for the collection of tolls. By order of Peter the Great, this fort was conſtructed according to a regular plan of fortification, on the round and elevated extremity of the iſthmus, above the naval harbour; it conſiſts of three entire and two ſemi-baſtions, four ravelins and ſeveral batteries on the ſteep ſea-ſide, and is inacceſſible there, as the bank forms a precipice upwards of fifteen fathoms high: on the land ſide it has conſiderable ramparts and deep foſſes, partly ſtrengthened with inner walls, but in an unfiniſhed ſtate. Being no longer conſidered as a bulwark againſt the Turks, its walls, as well as the bridges leading acroſs the foſſes, are ſuffered gradually to decay. A ſimilar fate threatens moſt of the buildings belonging to the Crown in the interior of the fortreſs; and the Commandant KASPAROF, a native of Armenia, has been under the neceſſity of erecting a houſe for his reſidence, without the precincts of the fortreſs, in the agreeable northern valley near the ſea, where he has alſo planted a vineyard, an orchard, and a beautiful nurſery of ſeveral hundred mulberry-trees. According to the original plan, the ſuburb on the land ſide was propoſed to be built in regular ſtreets, croſſing each other at right angles, over the

whole fortreſs; but, except thoſe ſtreets which extend along the ſea in a northern direction, and the ſouthern part of the town which is occupied by marines, the houſes are, in general, ill-conſtructed, and almoſt uniformly of wood. The timber, however, is conveyed on the Don at a conſiderable expence, a great part of which might be ſaved, if there was not ſuch a ſcarcity of day-labourers in this country who might be advantageouſly employed in breaking ſtones on the ſhore as well as in working at lime-kilns.

The market of Taganrog is ſpacious, and contains numerous wooden ſhops: the Greeks poſſeſs a particular row of booths, where, according to the Eaſtern cuſtom, they keep ſmall taverns and coffee-houſes, which are chiefly frequented by ſailors. Beſides the principal church, within the fortreſs, there are two others: one for the divine ſervice of the Ruſſians towards the land ſide; and another belonging to the Greeks, and contiguous to the ſea; the latter having been recently erected, as the maſons were ſtill at work, in finiſhing its walls of freeſtone. From the northern ſide of the valley, which contains the houſe of the Governor, the town commands a fine proſpect, which is repreſented in the twenty-fifth Plate. On the ſame ſide, but towards the low country contiguous to the ſea-ſhore, are ſquares of ſhops, or booths, called the Exchange, where the captains of veſſels, and ſhip-owners, expoſe their merchandize to ſale. Next to this place is the wharf, where we took notice of ſeveral merchant veſſels conſtructed in the form of pinks, completely armed, and worth from ſixteen to eighteen thouſand rubles each. On the contrary, the hoſpital for performing quarantine is ſituated to the Weſt of the naval

port,

port, immediately below the fortreſs, on the open wharf: here Peter the Great laid the foundation of a pier, which at low water ſtill projects conſiderably above the level of the ſea; but has never been properly finiſhed. It is therefore to be regretted, that a work which might be eaſily completed, and which could not fail to contribute to the proſperity of commerce, is now entirely neglected.

The number of the inhabitants of Taganrog amounts to about ſix thouſand; two thouſand of which are in the maritime ſervice, ſubject to the orders of the Port Captain, fifteen hundred belong to the garriſon commanded by the Governor, and the remainder conſiſts of merchants: the moſt numerous of theſe are the Greeks, who have emigrated from Neſhin and other foreign parts, and are exempt from the duty of providing quarters for ſoldiers, while they enjoy the privilege of chooſing their own magiſtrates. Several Greek families had lately come thither, and ſettled among their countrymen. A Greek from Zante brought with him all the implements and workmen neceſſary for eſtabliſhing a manufactory of macaroni; an article which he believed might be advantageouſly exported. Several noblemen of the neighbourhood have purchaſed houſes for the reſidence of their ſtewards, in order to facilitate the ſale and exportation of the produce of their eſtates.

Although the late Prince GRIGORY ALEXANDROVITSH POTEMKIN TAURITSHESKYI had a decided predilection for his favourite town of Kherſon, and ſhewed ſuch indifference for Taganrog, that he would even have ruined it without heſitation; yet the neceſſity of ſupporting the latter place, independently of its commercial advantages, was very obvious during the laſt war with

with the Ottoman Porte, when maſts, iron, timber, and other materials for ſhip-building, could frequently, on preſſing occaſions, be obtained from no other port than that of Taganrog. Even at preſent, a great part of the iron, ſhip-timber, and other uſeful articles which arrive by the Don and the Volga from Siberia, are tranſported by ſea from this place to Kherſon, Nikolaëf, Odeſſa, and Sevaſtopol, for the uſe of the Ruſſian Navy. Among other articles, the merchants of Taganrog have lately begun to export a ſpecies of pit-coal, exactly ſimilar to that of Scotland, and which readily burns to cinders. This foſſil is found in horizontal beds, near the ſources of the Krynka and Severnoi Donetz, at a diſtance of one hundred and twenty verſts from Taganrog; it is alſo obtained from mines worked on the banks of the rivulet Skrynovka, not far from the Donetz; whence it is brought by land, and afterwards tranſported in boats to Nikolaef and Kherſon, for the uſe of the anchor-ſmiths. It is however certain, that though the newly diſcovered coal burns perfectly well in a fire-place, when once properly kindled, yet it is ſoon extinguiſhed by blowing, ſo that even the expert Engliſh ſmiths cannot make uſe of it.

The port of this place, when conſidered with reſpect to the advantages of internal communication, and the numerous productions of the neighbouring governments, is not only of great conſequence to the marine of the Black Sea, but almoſt indiſpenſably neceſſary to the intereſts of the empire. Still greater benefits, however, might be derived from a more direct communication between the Don and the Volga. Frigates, carrying from forty to fifty guns, and thirty-ſix pounders on the lower decks, have hitherto been built by contract,

contract, on the wharfs of Taganrog, and thoſe eſtabliſhed near the mouth of the Don: they coſt Government one hundred and fifty thouſand rubles each, when entirely equipped; a price much lower than they could be furniſhed at, if undertaken by the officers of the Crown. For this purpoſe, the wood hitherto employed has been procured from the foreſts of Teplinſki, and thoſe known by the name of Leontievy Balky, near the ſource of the Mius: it is thence tranſported partly on the Volga, and partly by land, to Katſhalinſkaya Stanitza, near the Don; down which river it is conveyed to the wharfs. The maſts are brought from the Kama, and tranſported on the Volga; but the expence of their land-carriage from the banks of the latter to the river Don is very great. The laſt frigates built at this place were finiſhed in the ſummer of 1793; and one of theſe was now ready to ſail for Kertſh: here they generally unload part of their cargo, and are towed in by camels; becauſe they draw ſomewhat more than thirteen feet and a half of water, the greateſt depth in the navigation of the Boſphorus.

With reſpect to the maritime commerce carried on with the ſtates belonging to the Ottoman Porte, as well as with the whole Mediterranean coaſt, Taganrog may be conſidered as an advantageous place to the intereſts of Ruſſia. It will become ſtill more important during a general peace, when the great profits ariſing from the exportation of Ruſſian goods will be more generally underſtood, and the number of induſtrious merchants and factors conſequently increaſe; but eſpecially if a reciprocal trade could be eſtabliſhed between the ports of Taganrog and Theodoſia, or Kertſh, where the larger kind

of

of veſſels might ſafely land in all ſeaſons, and be freighted at a moderate expence with the bulky productions of Ruſſia. The commerce of this place has been revived only ſince the laſt peace with the Turks; ſo that in the year 1792 the number of merchantmen which arrived at this port amounted to ſixty; and by the tenth of October in the preſent year (1793) there have already reſorted hither eighty veſſels; ſeveral of which having two, and ſome even three maſts, were at this late ſeaſon taking in their cargoes. Among this number there were only ſix Ruſſian ſhips; as the principal part conſiſted of traders from Greece, chiefly from the Venetian iſlands, Turkey, Raguſa, and the Imperial and Neapolitan ſtates. All theſe, except the veſſels of the German nation, carry Ruſſian colours; the privilege of which is expertly obtained from our envoys and governors, under the falſe pretence of carrying Ruſſian property, though there be in reality but a ſmall or no ſhare of the cargo belonging to the merchants of Ruſſia. By ſuch abuſes, which are perhaps inevitable during the firſt eſtabliſhment of this maritime trade, the aſcendency of the Ruſſians, in their commercial intercourſe with the Black and Mediterranean Seas, is for ever prevented; and thoſe emoluments and prerogatives of the Ruſſian Flag, which are due to the ſhip-owners in their ſea-trade with Turkey, are conſequently enjoyed by ſtrangers. Theſe advantages are ſo conſiderable, that the veſſels ſailing under the Turkiſh flag are paid at about one third leſs for their freight, computed per Kantar *, becauſe they are obliged to ſell

* The Kantar is reckoned at three pood and twelve pounds, or one hundred and thirty-two Ruſſian pounds.

their

their cargoes at Conſtantinople, for the ſubſiſting market-price in that city, while the privilege enjoyed by the Ruſſian flag leaves the captain of the veſſel at liberty not to diſcharge the cargo, if he ſhould conſider the current prices too low for his goods, but to proceed directly to the iſles of the Archipelago and the Mediterranean, where the price of wheat is generally higher. All the merchantmen of Taganrog have two or three maſts, draw from ten to twelve feet of water, and the crew of each veſſel conſiſts of ten or more ſailors. Thoſe which are of ſtill greater burthen, do not take in their full cargoes at this port; but, after paſſing the Boſphorus, occaſionally complete them at Theodoſia. The voyage to or from Conſtantinople ſeldom exceeds eight days, though the maſters of veſſels frequently pretend to have been forty or even ſixty days on their paſſage, in order to ſhorten the period of their quarantine. This deception might be attended with dangerous conſequences to the interior of Ruſſia, as that fatal diſtemper, the plague, cannot fail to be ſooner or later introduced by ſuch fraudulent practices: but, by eſtabliſhing a general quarantine at Kertſh, which would effectually ſecure the Ruſſian Empire againſt epidemic diſeaſes, every danger might be averted; the quarantine eſtabliſhments hitherto maintained on the coaſt of the Sea of Azof would, by the abovementioned arrangement, be rendered ſuperfluous, and a conſiderable expence might be ſaved by Government.

The price of freight from Taganrog to Conſtantinople varies from one ruble, or leſs, to upwards of two rubles per kantar, according to circumſtances. Hence the advantage

which the owners of ſhips derive from this navigation is very conſiderable, and the loſs to Ruſſia equally great, as ſhe is in want of veſſels for that trade. At this time, the inſurance for the Black Sea was about five or ſix per cent.; but in the preceding year, when, during a ſtormy period of a month, ſixteen veſſels had been ſhipwrecked on the coaſts of Taurida, it ſuddenly roſe to twenty per cent.; and even at that enormous price, no underwriters could be obtained. Navigation is much interrupted here in the winter months, becauſe the roads of Kertſh, and a great part of the Sea of Azof, are then covered with ice. From the mouth of the Don to the heights of Taganrog, the ſea is every winter ſo completely frozen, that travellers go in carriages upon the ice with the greateſt ſafety. The whole ſhore is alſo to a very conſiderable extent covered with ice, towards the Eaſt as far as Yeiſkoi gorodok, and to the Weſt as far as Petrofskoi Krepoſt; it however often breaks in conſequence of ſea ſtorms, and thus expoſes the fiſhermen to the greateſt danger, when following their buſineſs. The ſea generally freezes in December, and remains in that ſtate till the month of March; but the ſhoals of ice in the Boſphorus delay navigation till a much later period of the ſpring.

Since the revival of this maritime trade of Ruſſia, the exports and imports, according to the annexed account, have annually been valued at from half a million to a million of rubles; but by far the greater part of this property conſiſted of articles exported. Although the cuſtom-houſe regiſters have always appeared to me inaccurate, I ſhall communicate the following ſtatement, as extracted from them.

Of

	Rubles.
Of foreign merchandize, during the year 1792, were imported to the amount of - -	97,653
The productions of Ruſſia exported during the ſame year were valued at - - -	370,551
The duties on the firſtmentioned merchandize amounted to - - - - -	29,041
Ditto, on the laſtmentioned articles amounted to	7,307
In the courſe of the year 1793, the foreign goods imported were valued at - - -	156,058
Ditto, the exports of Ruſſia, at - - -	428,087

A number of veſſels arrive here from Conſtantinople, with the half or whole of their ballaſt, ſo that after taking in their full cargoes, without diſcharging the ballaſt, they are often in imminent danger. In a ſimilar manner, ſhips reſort hither from Kherſon, becauſe it is of the greateſt advantage to freight them at Taganrog with articles of exportation. The ſurplus of the balance is paid in ducats or bills of exchange; but as the commerce with Perſia is not in favour of Ruſſia, the greater part of ſpecie is again exported to the former country by the way of Aſtrakhan.

If Taganrog were not almoſt entirely deſtitute of reſpectable and wealthy merchants, who had the means of eſtabliſhing ſtorehouſes, and extending their credit, its advantageous ſituation would be of the greateſt importance to the Empire; inaſmuch as an active trade with Ruſſian productions might be carried on to the Black Sea, and in a ſhort time alſo to the different ports of the Mediterranean. The fertility of all the

neighbouring countries affords inexhauſtible ſupplies for the exportation of corn: and this commerce is rendered ſtill more profitable, by the communication which the rivers Don, Donetz, and Volga, with their collateral rivulets, open to thoſe provinces of the Empire, which produce corn and other articles for foreign markets, at the moſt reaſonable prices. Such indeed are the advantages reſulting from this commercial intercourſe, that they might be enjoyed even by Taurida, without any detriment to Taganrog, if the ſtaple-trade, or the eſtabliſhment of granaries above alluded to, could be carried into effect.

Among the principal articles of exportation from Taganrog, are the following, namely, iron, wheat, butter, tallow, ropes, and cordage, ſail-cloth, hemp, Ruſſian linen, ſalted and preſſed caviar, ſalt-petre, Ruſſian leather, or Youghten, undreſſed ſkins, which are exported only by ſmugglers, briſtles, hare and other furs, &c. The Greek ſailors purchaſe, for their own traffic, the bed-ticks manufactured at Satrapeſnikof, coarſe linen-cloth, ſmall looking-glaſſes, and other trifles.

No port of the Black Sea can procure Siberian iron, and the goods caſt of this metal, in ſuch abundance, and at ſo cheap a rate, as that of Taganrog; whither theſe articles are conveyed, firſt on the Volga as far as Dubovka, for a freight varying in price from one hundred and twenty-five to one hundred and thirty kopeeks per pood, and thence farther by land to Katſhalina; from which place they are again tranſported in boats on the Don, at the low rate of from thirteen to twenty kopeeks. Even butter has lately been obtained by ſuch conveyance from Siberia, at a very reaſonable price; and tallow may likewiſe be procured in abundance, by the navigation of the Volga.

A con-

A conſiderable quantity of wheat has alſo been exported this year with uncommon advantage; and many cargoes of it have, probably in a clandeſtine manner, been carried into France. The grain which forms the principal object of exportation, is ſummer wheat, or, as it is called by the natives, Arnautka. In the ſmall diſtrict of Taganrog, the few Nobles, though generally poor, produce by their tillage about twenty thouſand Ruſſian tſhetverts of wheat, for the cultivation of which they chiefly employ day-labourers: the principal part of this grain, however, is obtained by land from the leſs remote diſtricts of Kharkof and the Vorona, as well as from thoſe of Ekaterinoſlav; the waggons by which it is brought, take in return partly wine, and partly cotton goods and ſalt fiſh, which articles are thus conveyed to the interior parts of the country. An attempt has alſo been recently made, to ſend wheat from the Lines of Caucaſus by the proviſion-waggons returning to Tſherkaſk, and afterwards to tranſport it by water. In fertile years, the price of this grain is here about three rubles the Ruſſian kullo, being nearly ſeven pood and a half, or three hundred pounds weight: on account of the indifferent harveſt of laſt year, 1792, and the great demand for exportation, the price of wheat advanced to four rubles and a half, for a ſimilar meaſure. As there is no merchant at this port whoſe circumſtances enable him to eſtabliſh magazines, in order to promote this branch of commerce, and render it more lucrative, the captain of the ſhip, on his arrival here, or his correſpondent, is obliged to ſend orders to all the neighbouring villages, to procure a cargo for the veſſel. The price of freight from Taganrog to Conſtantinople is one hundred and ten parias, or one hundred and

ſixty-

ſixty-five kopceks per kullo, five of which make a Ruſſian tſhetvert. During this ſpring, and in the preceding year, the price of the tſhetvert of wheat at Conſtantinople, and in the iſles of the Archipelago, advanced to twenty-five piaſtres; and though the late importation reduced it to fourteen piaſtres, yet the profit was very conſiderable, becauſe the tſhetvert, at the place of ſale, including the price of freight, coſt the traders only nine piaſtres.

The Turkiſh markets can ſcarcely ever be ſupplied with a ſufficient quantity of butter; hence this article is in all the neighbouring countries ſpeedily bought up for exportation, and conveyed, even from Siberia, in barges chiefly loaded with iron. It is tranſported in caſks containing it in a melted ſtate, and affords a greater profit than wheat; for it is generally ſold in Conſtantinople at a price of nineteen or twenty rubles the pood, though it is purchaſed at Taganrog for ſeven.

Wheat and butter are, therefore, articles which ought to pay a heavy duty, as the benefits derived from them fall into the ungrateful hands of foreign merchants. Ropes and cordage of different ſorts form another article of exportation; they are partly made at this place, and partly conveyed hither from other diſtricts of Ruſſia. With theſe, as well as with ſail-cloth, coarſe linen, hemp, and flax, Taganrog will, if its ſea-trade ſhould increaſe, be enabled to furniſh all the ports in the Mediterranean, at a lower rate, and of a much better quality, than they can at preſent be procured from the ports of the Baltic: in a ſimilar manner even France and Spain might, during a naval war, be ſafely and effectually ſupplied with the commodities above ſpecified. The ports of Kherſon and Odeſſa might

ſhare

ſhare this advantage with Taganrog, and likewiſe export the productions of the diſtricts formerly belonging to Poland, but now under the ſovereignty of Ruſſia.

Preſſed caviar, which is chiefly demanded for the Italian markets, has hitherto been exported from Aſtrakhan. It may however, in future, be procured at a lower price, and more expeditiouſly by water, from the Kozaks of Tſhernomorſk, when their domeſtic economy will be more eſtabliſhed. They have indeed begun to prepare it in a ſuperior manner; the pood at preſent coſts three rubles and half.

In the ſouthern countries of Europe, conſiderable quantities of *Ichthyocolla*, or iſinglaſs, are uſed, in order to give a brilliant colour to their wines: this neceſſary ingredient is at preſent purchaſed from the Engliſh, who import it from Ruſſia; though it might be obtained from the latter country, not only at a more reaſonable rate, but through a much nearer channel. Ruſſia leather, which is brought from Voroneſh, coſts at Taganrog ſixteen rubles the pood; but red leather only is exported. There is, however, a ſmuggling trade publicly carried on with half-tanned leather, becauſe the exportation of raw hides is prohibited: others equally cunning evade detection, by immerſing the hides under water, previouſly to the ſailing of the veſſel to which they are faſtened, and towing them through the ſea, till they arrive at a diſtance convenient for removing them on ſhip-board. If, therefore, the exportation of raw leather were permitted, and made ſubject to the payment of a regular duty, Government would derive that benefit which is now enjoyed by ſmugglers, who are thus enabled to carry on their illicit practices.

Of

Of leſs importance are the other articles of exportation; though they may, with the gradual increaſe of the commerce of Taganrog, become objects of greater conſequence than they are at preſent. The ports of the Mediterranean and the Levant might ſend hither with advantage for tallow, ſoap, linſeed, ſalted and ſmoaked fiſh, ſalt meat, of which laſt article, however, only a ſmall quantity has hitherto been exported, the ſoda of Aſtrakhan, potaſh, and pit-coal, beſides a variety of other articles. Large maſts for frigates and ſhips of war are conveyed to this port by the navigation of the Kuma, and are ſold here at the price of one hundred rubles each; theſe might become a valuable branch of exportation, if large veſſels, freighted with ſuch maſts, were permitted to paſs the Dardanelles: they could eaſily be ſent on rafts, as far as Theodoſia.—The export trade of this place is in every reſpect free; ſo that previous to the laſt war, even cannons of caſt iron, and ſaltpetre * from the Ukraine, were ſhipped for Conſtantinople; a traffic which is ſtill continued.

In taking a comparative view of the import and export trade of Taganrog, the balance is greatly in favour of Ruſſia; and the principal articles imported conſiſt in wines of the common kind, called Byelomorſkoi, or Santorino, as well as a ſmall quantity of a better ſort from Tenedos, Byzant, and other places of the Archipelago, Italy, and even from Spain: beſides theſe, the Ruſſians import dried fruits, marmelade made of boiled grapes, called Bekmeſs, and that of other fruit, called

* Nitre could be purchaſed at this time, in a crude ſtate, as it is imported from Little Ruſſia and the Ukraine, at the price of two rubles and three quarters, or three rubles the pood, though it occaſionally riſes to four rubles and a half.

Nardenk;

Nardenk; Anadolian nuts, which are ſent to the interior of the country; gall nuts, called Balamut, which are imported for the uſe of the Morocco tanners of Nakhtſhivan; a few ſilk and cotton ſtuffs from Turkey, among which ſeldom are any of a ſuperior kind; freſh lemons; oranges; lemon juice, and rum.

Wines form the principal article of importation, and though procured at a very cheap rate, they generally are of ſo indifferent and ſtrong a quality, that they are not reliſhed at table: hence the merchants are obliged to ſend them either to the neighbouring provinces, where wines are ſcarce, or to convert them into brandy by diſtillation; becauſe four meaſures of this liquor commonly yield one of brandy. The Nardenk, and the Bekmeſs, are alſo fermented for the ſame purpoſe, and diſtilled in an alembic; but they afford only an inferior ſort of brandy.

It may be eaſily underſtood, that on account of this ſmall importation the balance of trade is very favourable to Ruſſia. Hence it were to be wiſhed, that this commerce might be increaſed by opulent merchants, who would promote the importation of ſilk and madder; articles which we at preſent purchaſe from the Perſians for ready money, and much to our diſadvantage, while we ought to receive them in exchange for the productions of our country. If Spain, at ſome future period, could be ſupplied with her naval ſtores by the Black Sea, we might in return obtain, from the firſt market, her fine wool of Segovia for our woollen-cloth manufactories of Ekaterinoſlav, as this wool is now imported at a great expence by

way of Peterſburg; and we might alſo receive, by the ſame channel, all ſorts of drugs and dyeing materials; ſuch as Peruvian bark, ſarſaparilla, indigo, cochineal, olive oil, cocoa, gall nuts, &c. An attempt has alſo been made to import hare-ſkins to Taganrog, whence they are ſent to foreign markets with conſiderable profits, by the Baltic Sea. Notwithſtanding the prohibition of the Ottoman Porte againſt the exportation of copper from Anadolia, the low price of this article has induced the Ruſſian traders to ſmuggle it out of the Turkiſh dominions, as it amply repays the additional expences attending its importation.

Having given an account of the trade of Taganrog, I ſhall proceed to relate a few particulars reſpecting the climate and ſoil of its environs: my obſervations will, for the moſt part, apply alſo to the whole of that highly fertile country extending from the Sambek to the Kalmius, and beyond the ſmall rivulet Berda, as well as northwards from the Sea of Azof to the Severnoi Donetz. Since the dominion of the Tartars has been aboliſhed, and thoſe wandering hordes, hitherto ſo dangerous to the neighbouring countries, have been converted into induſtrious ſubjects, this excellent tract of land, which formerly was ſuffered to lie waſte, deſerves to be diligently cultivated; eſpecially as there is too great a proportion of coloniſts in many leſs fertile diſtricts, and as the opportunities of exporting the produce of that invaluable ſoil are equally convenient and advantageous. The country round Taganrog is ſo fertile that, in

in a recently tilled ſoil, wheat may be ſown without manure during four or five ſucceſſive years; its crops frequently are from twenty to thirty fold; and in good ſeaſons, even thirty-eight grains are obtained from one. The harveſt of the preſent year afforded only a tenfold return, and was conſidered as an indifferent crop. There have been inſtances of ſix meaſures of millet having produced one hundred and twenty.—Good economiſts might cultivate gardens and plant all the uſeful ſpecies of trees for timber here, with the greateſt facility; as the ſoil, which is ſufficiently moiſt, is productive of a very luxuriant vegetation, and requires little or no labour. All kinds of fruit trees grow with aſtoniſhing rapidity, and afford excellent fruit, even without being grafted; eſpecially apricots, cherries, and apples. The firſt of theſe, as well as peaches, thrive in the open air, but cheſnut-trees have ſometimes been deſtroyed by the cold of this climate. On the contrary, all the ſpecies of the mulberry-tree proſper here uncommonly well; and I have had occaſion to obſerve, in an extenſive plantation of many hundred ſuch trees reared from the ſeed, that moſt of them, though only from two to four years old, were yet ſufficiently large to furniſh food for the nutriment of the ſilk-worm. This tree begins to ſprout about the 10th day of May; a period by which the inhabitants regulate themſelves with reſpect to the hatching of the worms; the time of their feeding generally extends to the 10th day of June, when they have attained their full ſize, and begin to ſpin large *cocons*, or clews of ſilk. When theſe inſects are fed with the branches, as is practiſed in Perſia and Boukharia, the tree has ſcarcely time ſufficient to recover

its new ſhoots previouſly to the beginning of autumn, and to bring their leaves to maturity. Nevertheleſs, this valuable tree can be propagated in the more northern latitudes of Ruſſia. The cold ſea-winds, however, are very detrimental here to the growth of the mulberry-tree, as well as to the cultivation of the vine; hence the grapes ſeldom become perfectly ripe. It were to be wiſhed that the Greeks and Armenians, eſtabliſhed in the diſtricts of Taganrog and Roſtov, could be encouraged by premiums, and other advantages, to devote themſelves to both theſe branches of horticulture, for which thoſe two nations poſſeſs peculiar talents.

Plantations of oak and elm, as well as all kinds of nurſery-trees, might be cultivated in every part of this fertile country, and thus the ſcarcity of wood be eaſily ſupplied. Government would derive incalculable advantages, if the oak could be produced in a country which is ſo contiguous to the ſea; eſpecially when it is conſidered, that the extravagant ſum of ſixty-five thouſand rubles was paid, merely for tranſporting the timber requiſite for building a ſhip of war of fifty guns, to the wharf of fort Roſtov.

As there is an obvious want of timber for the eſtabliſhment of villages, it would be adviſable to adopt the method of building practiſed in Taurida; which conſiſts in the uſe of crude lime-ſtone and clay; but in places where this ſtone cannot be procured, unburnt bricks, or wicker-work plaſtered with clay, might be ſubſtituted. Walls erected of unburnt bricks are, no doubt, more advantageous, durable, and cleanly, than thoſe made of earth and mud. To facilitate ſtill more the manufacture

of

of ſuch bricks, large moulds of three or four fathoms in length, with tranſverſe boards, ſhould be uſed; by means of which from twenty to thirty bricks may be formed at each filling of the moulds. Very durable ſtoves and vaults may be conſtructed of theſe bricks, eſpecially when they have been perfectly dried.

Abundant and luxuriant weeds, called Burian, grow in every part of this country, but eſpecially in low ſituations, and fallow grounds: they are uſefully employed as a ſubſtitute for fuel, even at Taganrog, where the price of wood is exceſſive *; and as no arrangements have yet been made to procure the pit-coal from the neighbourhood, moſt of the principal houſes uſe ſuch weeds made into faggots; which are collected in autumn on fallow lands, carried to town, and laid up in large heaps for the winter. Theſe plants conſiſt chiefly of the *Artemiſia vulgaris*, *Cichorium*, *Arctium*, *Verbaſcum nigrum*, *Dipſacus ſylveſtris*, *Daucus mauritanicus*, *Conium maculoſum*, ſeveral ſpecies of the *Centaurea*, wild hemp, milfoil, the *Althea*, *Leonurus cardiaca*, *Lavatera thuringica*, *Eryngium campeſtre*, *Carduus ſerratuloides*, and *Atriplex laciniata*. They afford a greater degree of heat than the ruſh; about twenty-five, or, in the coldeſt weather, fifty of theſe faggots, though each of them is not larger than the circumference of both hands, warm the room by their con-

* Small quantities of fire-wood and charcoal, for the uſe of ſhips, as well as the kitchen, are brought to Taganrog on the river Donetz: the former coſts from ten to twelve rubles the fathom: balks or beams are alſo conveyed to this place on the Volga and the Don; they are ſold at the rate of three rubles and upwards each.

flagration

flagration in a few minutes, produce a conſiderable proportion of cinders, and conſequently a permanent heat, as the ovens are but thinly plaſtered. Beſides this excellent property, the combuſtion of thoſe weeds does not contaminate the air with diſagreeable ſmoke or exhalations, but, on the contrary, perfumes the apartment with an agreeable odour. The only inconvenience attending the uſe of thoſe herbs, is the trouble of making them into faggots, and frequently clearing the hearth of their aſhes; which laſt, however, on account of their ſtrength, might be uſefully employed in the manufacture of pot-aſh and ſalt-petre. An attempt has been made by thoſe Noblemen who poſſeſs vaſt quantities of grain, to eſtabliſh diſtilleries for brandy, and to uſe pit-coal as well as dung for heating the ſtills; but the fire made of the latter, eſpecially when collected from ſheep, corrodes and quickly penetrates the copper ſtills, while that of pit-coal cannot be duly moderated, and frequently melts the veſſels.

It is not uncommon to meet with pit-coal in the vicinity of the Donetz, and towards the North of Taganrog, beyond the ſources of the rivers which empty themſelves into the Black Sea. This uſeful foſſil has alſo been lately found in the environs of Tor and Bakhmut, as well as in ſeveral other places. Beyond the ſources of the Mius and the Krynka, the country riſes and forms more lofty mountains of ſchiſtus, layers of which are frequently obſerved on their tops: the heights, however,

however, precipitately decline near the Severnoi Donetz, ſo that the oppoſite ſide preſents level meadows. Small beds of pit-coal are found in ſeveral parts of this country, almoſt on the ſurface. Such ſtrata have likewiſe been diſcovered near the ſource of the Mius, eighty verſts from Taganrog, in what are called the Leontievy Balky; they conſiſt of ſuperficial thin layers, which do not afford a proſpect of repaying the expences of labour; but, if we may judge from the analogy ſubſiſting between this and other countries, though often liable to exceptions, it is probable that there exiſt here much deeper and better ſtratifications. In a ſtate not unlike the former, thin beds of coal appear in the gutters made by the rain-water around the ſource of the Krynka, which falls into the Mius. Near the rivulet Byclaya, that empties itſelf into the Lugan of the Donetz, at a diſtance of one hundred and fifty verſts from Taganrog, a bed of inferior ſlate-coal, four fathoms thick, preſents itſelf diſtinctly in a glen containing rain-water; and another leſs capacious one, but of a better quality, has been found at the depth of ten fathoms from the ſurface, beneath a black ſchiſtus, which is partly laminated, and partly breaks in thick plates: the whole belongs to the eſtate of the Aſſeſſor STERITSH.—Between the beds of coal were large and ſmall lumps of pyrites, among which we found flat and light pieces of a ſimilar foſſil, internally black, and preſenting ſmall needles in their fracture: on expoſing them to the action of fire, they did not burn with a flame, but emitted a ſtrong ſulphureous vapour. The beſt kind of coal, which is at preſent worked for the Admiralty, is obtained from the pits near the rivulet Skrynovka, diſtant

diſtant one hundred and twenty verſts from Taganrog, and not far from the Severnoi Donetz; where coals have alſo been diſcovered in the vicinity of ſeveral other ſprings. They are conveyed by land to the port of Taganrog, and reſemble in property the beſt Scotch coal, which burns to aſhes; and, as they kindle with difficulty, their combuſtion is ſlow, and affords a ſtrong and laſting heat: on account of this circumſtance, however, ſuch coals cannot be uſed with advantage by the ſmith, being unmanageable with the bellows. They break in large maſſes, reſembling in fracture common pitch, but frequently taking a ſemi-radiated direction in the pits. Of a ſimilar kind are ſaid to be the coals found in the environs of the ſmall rivers Toretz and Bakhmut.

The whole extent of country ſituated between the Don and the ſmall river Berda, towards the North of the Sea of Azof, is compoſed of calcareous and marly ſtrata, which generally form the high ſhores of the ſea. On the elevated iſthmus, on which the town and fortreſs of Taganrog are built, theſe ſtratifications are interrupted by the land. The ſteep bank is of a perpendicular height, from ten to eleven fathoms, and conſiſts of a yellowiſh clay on its ſurface, but of a mixture of common marine layers at its baſis. On examining the ſtrata along the ſea-ſide, we obſerved that the lowermoſt was generally a bed of ſolid ſtony marl, from three and a half to ſeven feet thick, and interſperſed with a few ſhells; a foſſil which is principally uſed for building. Immediately above it followed alternate thin layers of ſhell-lime of various degrees of hardneſs. Between the latter, and above them, were inconſiderable

ſiderable ſtrata of pure ſand, often mixed with ſhells, known by the name of *Helices*, which are alſo abundantly met with in the Don, yet much above the higheſt level of the ſea. At intervals we took notice of ſtrata of a coarſe ferruginous ſand; and in one of theſe I found half an elephant's tooth completely petrified. Above them were beds of a grey and yellow Fuller's earth, but occaſionally again of chalk and marl. In the ſhell-lime we obſerved but a few different kinds of ſhells, ſome varieties of the *Chama*, one ſpecies of the *Cardium*, and the common pectinites, few of which were perfectly calcined, moſt of them in fragments, and mixed with innumerable grains of the ſize of millet, apparently originating from a cretaceous ſand, and partly from ſmall ſnail-ſhells. There is no doubt, that the mixed beds, which are ſituated above the hard marly ſtratum, but ſeldom to a great extent, have been formerly depoſited by a more elevated ſea, or carried thither by inundations; as they are found in no order, but often interrupted, and not horizontally diſpoſed. Several wells have been dug through theſe ſucceſſive layers of earth, clay, and lime-ſtone, within the fortreſs, as well as in its vicinity, to the depth of ſeventeen and even twenty-four fathoms: their ſprings riſe from a bed of ſand-ſtone, which lies below the *niveau*, or level of the ſea. Some of theſe wells contain brackiſh water, particularly that dug in the fortreſs; but that diſcovered in the valley, eaſtwards of this place in a garden belonging to the Commandant, is more potable, as it paſſes through a clayey ſoil, at the inconſiderable depth of four or five fathoms.

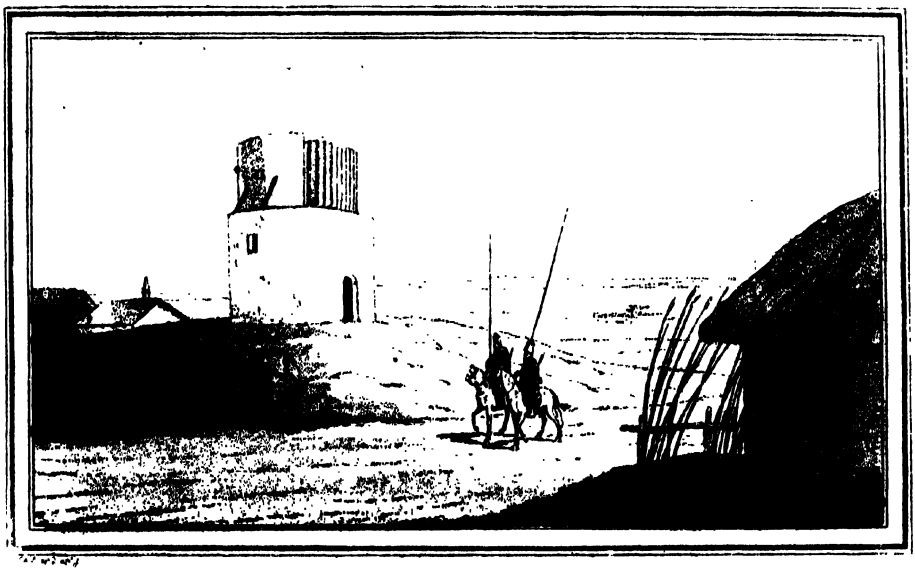
Near Taganrog the ſea is of a greeniſh colour, and not very ſalt, on account of the vicinity of the Don, ſo that its water may be uſed for waſhing and other domeſtic purpoſes. When the wind blows from the ſhore, the ſea retreats to a conſiderable extent, and the veſſels in the roads frequently lie ſideways upon their keels, in a ſoft mud: but when the wind ſhifts to the oppoſite quarter, the ſea riſes to the baſe of the ſteep bank, which, in its ſofter parts, is undermined by the ſea-water, while the ſtony parts are as it were excavated by the waves. The difference between the higheſt and loweſt water amounts to about ſeven feet; three of which may be reckoned for its decline, and four for its increaſe above the ordinary level. In its whole breadth, which from Taganrog to Kertſh is computed to be three hundred and fifty verſts, the ſea of Azof is in no place deeper than from twenty-five to thirty fathoms. From the mouth of the Don to the diſtance of one hundred and fifty verſts, there is every where good anchorage at a ſmall depth, and in a ſoft miry bottom.

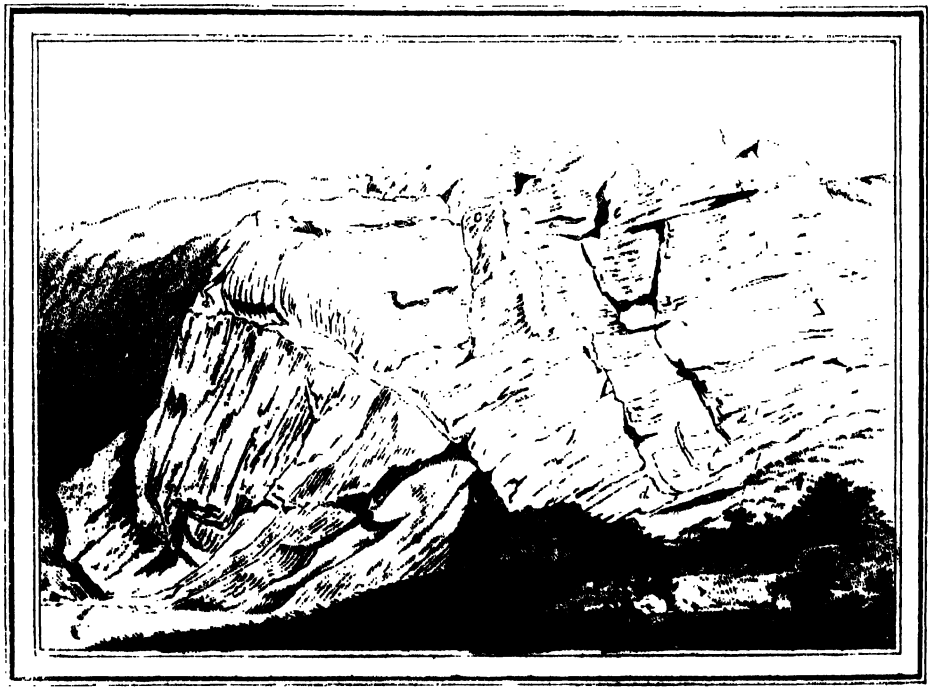
The environs of Taganrog, on account of the refreſhing ſea-winds, are ſituated in the moſt temperate and wholeſome climate of Ruſſia: the fountain and river waters of this city are generally good. In autumn, winter, and ſpring, tempeſts and thick fogs, which depoſit much humidity, are common near the ſea. Such fogs moſt generally and copiouſly occur in the bays formed by the Don, and do not ſpread farther than thirty verſts into the country. In ſome winters the ſnow often covers the ground to a conſiderable depth; on the contrary, in others ſcarcely any of it falls. The floating ice is the principal cauſe of

of the freezing of the ſea; but its bed is frequently broken by tempeſts. In the year 1791, at a period when the ſea was frozen over, the ice was ſuddenly ſeparated by a violent gale of wind, and driven with ſuch impetuoſity, that it not only damaged the harbour, but entirely demoliſhed the marine hoſpital, which was built of wood, and ſituated cloſe to the ſhore, though far above the higheſt level of the water: the unfortunate perſons who inhabited this building in the night of that diſaſtrous event, ſaved their lives with the greateſt difficulty.

The ſea of Azof near this place produces fiſh in conſiderable quantities, and even ſturgeons of every deſcription are taken here; but no other ſea-fiſh. A ſmall kind of blay, the *Cyprinus Ballerus*, which the natives call Singa, or Sinya, and a few of the *Cyprinus cultratus*, or Sablya, are caught in large draughts: the former of theſe are ſo numerous, that the fiſhermen often take from forty to ſeventy thouſand in one net. During my reſidence in this place, the carriers of wheat bought them at the rate of two rubles the thouſand: they were ſimply ſalted in layers, and thus tranſported to the interior of the country. In ſummer, when they cannot be conveniently ſalted for other markets, the proprietors of the ſtore-houſes are, according to an agreement ſubſiſting between them and the fiſhermen, not obliged to purchaſe more than thirty thouſand fiſh in one day, as a greater number cannot be properly cured within that ſpace of time. It is therefore not uncommon, when too great a number is taken at one draught, that more than one half is returned to the ſea.

On the barren ſteppe we met with ſcarcely any other game but large and ſmall buſtards, hares, and partridges. The appearance of the woodcocks, however, is very remarkable; as theſe birds, notwithſtanding the general ſcarcity of wood, arrive here in numerous flights, during the winter, and ſearch for their food around the ſtacks of corn, and on fallow lands.





Journey from Taganrog to Taurida.

THERE is at preſent no direct poſt-road eſtabliſhed between Taganrog and Taurida; nor do the permanent villages, ſome of which are guarded by the Kozaks of the Don, extend farther than the rivulet Berda; the remainder of the way leads over a ſteppe inhabited by the Nagais. Thus circumſtanced, I thought proper to ſend a meſſenger to the Counſellor of State, M. HABLITZL, my particular friend, and at that time Deputy-governor of Taurida, with a requeſt, to order the Nagais to procure horſes, at certain ſtages on the road from Berda to Perekop, leſt at ſo late a ſeaſon I ſhould have been under the neceſſity of taking the very circuitous route by Bakhmut and

and Ekaterinoſlav. While waiting for an anſwer at Taganrog, I enjoyed, with the companions of my journey, the moſt liberal hoſpitality, from the kindneſs of M. KASPAROF, Commandant of that place. As the weather was rough, and the ſtate of my health precarious, I conſidered myſelf peculiarly fortunate to meet with a fire-place and other conveniences, which I could not expect to find on the advanced road.

Eighteen days had elapſed before the interpreter arrived, who was directed to accompany me on my journey through the country of the Nagais. At length, on the 21ſt of October, we left Taganrog, and proceeded firſt in a retrograde direction acroſs the retrenchment and the ſmall rivulet Tſherepakha; then turned to the Northward, over the ridges of ſtratified lime-ſtone, near the Mius, as far as Korovie-brod, or the cow ferry, where we paſſed that river, and thus arrived at the firſt ſtage, nineteen verſts from Taganrog. The diſtance from the Sambek to this place, in a direct line, is computed to be twenty verſts.

The valley, which is watered by the Mius, forms an extenſive baſon, with ſteep and craggy ſhores; a ſatisfactory proof of the former exiſtence of a bay here, as well as at Miuſkoi Liman. On the oppoſite ſide of the Mius, the ſtratified ridge of lime-ſtone becomes progreſſively higher; and, as we proceeded along the borders of this riſing country, we were gratified with a view of the whole valley, in which we diſcovered the Slobode of Nikolaefsk, a place inhabited by coloniſts from Little Ruſſia. We next deſcended to the brook Saramatſkaya, which is formed by waters iſſuing from ſeveral low valleys, and empties itſelf into the Mius. Here we met with a common

inn,

inn, ten verſts diſtant from the laſt ſtage.—The calcareous ſtrata now began to riſe again: we obſerved ſeveral ſepulchral hillocks erected of ſtone; and after travelling thirteen verſts, we arrived towards night at our next ſtage, near the Noſſova Balka; a ditch which contains but little water, and joins the Miuſkoi Liman. Our road extended to the Weſtward, and we were informed that the ſea-coaſt is fifty verſts diſtant. The *Crambe orientalis* appeared here but rarely; it was of the ſame ſpecies as that we had formerly obſerved in an iſolated ſtate, on the ſteppe of the Dniepr.

On the 22d of October, early in the morning, we continued our journey over an elevated but level country, to the river Mokroi, or the Wet Yelantſhuk. Strata of lime-ſtone appeared only in one of the glens; and the ſteppe preſented innumerable ſmall hillocks; but theſe were, on cloſe examination, diſcovered to be the work of the marmots, as they had frequently deſerted their habitations, to each of which we found their avenues. The Mokroi Yelantſhuk flows through a declining valley, which in ſeveral places contains ſtrata of lime-ſtone. This ſtage is twenty-two verſts diſtant from the former; and the ſea thirty-five verſts to the Southward. We met with numerous flights of partridges; and ſwallows were here and there ſettling along the road, probably to feed on ſmall ſlugs, or earth-worms.

The elevated plain became gradually more rugged, and thus continued even beyond the Sukhoi, or the Dry Yelantſhuk. Our next ſtage was near the Gruſkoi, or the Heavy Yelantſhuk; a diſtance of thirty verſts. As we did not find a ſufficient ſupply of horſes here, we purſued our journey without changing

changing them, till we came to Shirokaya Balka, or the broad glen, twenty-eight verſts from the laſt-mentioned ſtage. From this place to the Kalmius the diſtance is computed at twenty-three verſts: the road leads over an entirely level but elevated plain, on which we remarked a few ſepulchral hillocks erected of ſtone. On one of theſe ſacred mounds we ſaw two great vultures, *Vultures Perenopteri*, birds of prey, which are very numerous in Taurida; but we could not approach them within gun-ſhot. The very ſteep and lofty bank of the Kalmius is chiefly compoſed of rock. Towards night we croſſed that river, which is ſeventy fathoms broad, in a flat boat; the ferry is five verſts diſtant from the ſea-ſhore. When the wind blows from the ſea, the water frequently riſes more than three feet and a half, Engliſh meaſure, above its uſual current. From this ferry we proceeded along a valley, at the foot of eminences compoſed of calcareous ſtrata, to the Greek town of Mariupol, twenty-eight verſts diſtant from the laſt ſtage. On our way we croſſed the little rivulet Kaletz, which empties itſelf into the Kalmius.

Mariupol, or as it is denominated in the Ukaſe of the eſtabliſhment, Marianopol, was built at the ſame time with Nakhtſhivan, by Greek emigrants from the mountains of Taurida. Merchants and mechanics principally ſettled in the town; but the adjacent diſtrict was granted to huſbandmen, by whom it is now inhabited: their territory is remarkably fertile, but entirely deſtitute of wood. Towards the Eaſt of the Kalmius it borders on the country inhabited by the Kozaks of the Don; and to the Weſt, on the ſmall river Berda. The town conſiſts of two churches and three hundred and five dwelling-

dwellinghouſes, chiefly built of freeſtone; it alſo has a good market-place, furniſhed with wooden booths. The houſes are conſtructed in the Grecian ſtyle, with projecting roofs ornamented with ſcrolls, or brackets, and covered with hollow tiles: both churches are decorated only with wooden turrets. Few of the inhabitants have begun to form gardens; perhaps becauſe they ſtill entertain hopes of being removed to Taurida. Among theſe new coloniſts are artiſans and mechanics of almoſt every deſcription; and we met here alſo with tanners as well as manufacturers of Morocco leather. Their induſtry and police, however, did not, in general, appear to us equal to the regulations prevailing among the Armenians. According to a late computation, the number of the inhabitants of Mariupol conſiſts of eight hundred and ninety-one males, and eight hundred and eighty-four females.

The new colonial villages are moſtly ſituated on the banks of the Kalmius, and its conſtituent rivulets: ſeveral of theſe places have alſo been eſtabliſhed near the ſea-coaſt; and almoſt every one of them has been called by the old name of the ſettlements formerly inhabited in Taurida. I have here ſubjoined a correct liſt of their names, as well as of their reſpective population.

	Houſes.	Men.	Women.
Yalta, near the ſea-coaſt - -	155	360	350
Urſuf, ditto - - -	50	122	100
Manguſh, on the banks of the Byeloſaraika - - -	163	391	350
Staroi-Krym, near the rivulet Kaletz	71	177	153
Maloi Yeniſala, ditto - -	191	496	425

		Houſes.	Men.	Women.
	Tſherdakly, near a ſmall rivulet falling alſo into the Kaletz - -	85	238	237
On the banks of the Kalmius.	Sartana - - - -	140	416	373
	Tſhermalyk - - -	94	277	240
	Karana - - - -	135	410	320
	Ignatzievka - - -	130	295	281
	Laſpi - - - -	74	130	140
	Karakuba - - -	254	685	633
	Beſhew - - - -	115	280	236
	Stila, near the rivulet Volnovaſha -	112	283	242
	Conſtantinople - - -	110	266	236
	Ulakle - - - -	77	177	176
	Bogatyr - - - -	130	329	304
	Kamara - - - -	96	333	279
	Bolſhoi Yeniſala - - -	142	360	227
	Kermentſhik - - -	163	431	345

The whole amounts to two thouſand four hundred and eighty-ſeven houſes, inhabited by ſix thouſand four hundred and fifty-ſix males, and five thouſand ſix hundred and fifty-two females.—I ſhall only add, that the laſt ſpecified villages are ſituated near the rivulets which empty themſelves into the river Konſkye vody.

Mariupol is built in a ſituation equally advantageous and extenſive, on the declivity of the high ſteppe, which, towards the valley, forms the right or weſtern bank of the Kalmius. This river flows in a north-eaſtern direction, with many windings, towards the Black Sea, of which we had a diſtinct view.

view. The high country, formed by the calcareous ſtrata, gradually declines from the mouth of the river, and opens into an extenſive dale, the ſoil of which is covered with verdure, and appears to be ſcarcely more than a fathom above the level of the ſea. Tumbaſſes, or barges, carrying from one thouſand to fifteen hundred pood Ruſſian weight, may enter the mouth of the Kalmius: and about five of theſe veſſels belong to the ſhip-owners of Mariupol, who likewiſe poſſeſs forty fiſhing boats. Belugas, or ſturgeons, and a number of Sevrugas, generally of a large ſize, are taken in the ſea; and a quantity of iſinglaſs, as well as ſmoaked fiſh cut in ſlices, called Balyki, are prepared by the fiſhermen of this place. The inhabitants are deſtitute of almoſt every ſpecies of fuel, except large ſtalks of plants, or Burian, brought to market in waggons, and generally conſiſting of the *Artemiſia vulgaris*, *Melilotus*, *Verbaſcum Thapſus* and *nigrum*, and *Centaurea Scabioſa*.

The high bank of the valley is compoſed of an horizontal ſtratum of lime-ſtone covered with earth and verdure towards its declining baſis, but expoſed at its top, eſpecially on its elevated ſurface, the height of which is from three fathoms to three and an half above the valley. On a more minute ſurvey of this ſtratification, I found it conſiſted partly of hard layers of a whitiſh grey colour, from nine inches to upwards of two feet thick, and breaking in large plates, interſperſed throughout with pectinites, tellinites, and oolites, and partly alſo of thinner and much ſofter layers. Beyond the town, and on the upper edge of this calcareous ſtratum, above which the verdant ſteppe imperceptibly riſes three or four fathoms higher, we clearly perceived the ancient ſeparation or inter-

ruption of theſe beds, which were apparently corroded by the waſhing of the waves, eſpecially in thoſe places where the Greeks had worked no quarries of freeſtone. The alluvial deſtruction of ſhells was evident in a great number of holes and caverns. In ſome of the former, which penetrate the ſtratum of ſtone almoſt horizontally to the depth of two or three feet, I met with a coarſe quartz ſand, mixed with ſhells in a tolerable ſtate of preſervation, and reſembling thoſe which are to this day found, not only in the Caſpian Sea, but likewiſe on the adjacent ſteppe; an indiſputable proof that the ſea in former ages was confined by this bank, and had nearly four fathoms of water. A farther corroboration of this conjecture, are the looſe alluvial ſtrata, formed immediately above the ancient and firm horizontal bed of lime-ſtone. We generally found here, a layer of a pappy calcareous matter, ſometimes upwards of eighteen inches thick, depoſited by the ſea, and mixed with a coarſe white quartz ſand, apparently produced by the attrition of lime-ſtones and ſhells. Above this, we frequently obſerved an irregular bed of a very pure white, and occaſionally a coarſe yellow quartz ſand; next to the interrupted layers there again appeared a ſtratum of white calcareous earth, often eighteen inches in thickneſs, and more or leſs mixed with a coarſe, edged, white, and tranſparent quartz ſand, which at length was ſucceeded by an upper ſtratum of clay and loam, with black mould and verdure on its ſurface. Below the upper layers of the horizontal ſtratification, I obſerved in one place a thin bed of friable ſhell-lime in a decompoſed ſtate, containing a few fragments of cryſtallized ſhells of various kinds filled with quartz: the laminated ſubſtance of

theſe

theſe ſhells was corroded in a manner ſimilar to thoſe found in the environs of Bologna, as well as in Piedmont, and frequently preſerved in the cabinets of natural curioſities. On the marginal ſurface of the upper ſtratum before mentioned, there is a white calcareous earth, mixed with a ſharp quartz ſand, which the Greeks eſtabliſhed in this place uſe with advantage, in conſtructing the walls of their houſes; becauſe it ſerves as an excellent mortar. Another bed of ſimilar marly lime has been diſcovered in the low country, near the town, where it lies expoſed on the ſurface.

Below the whole calcareous ſtratum, wells from three and a half to five feet deep have been dug in ſeveral places on the border of the valley, near the town: theſe artificial ſprings afford a very pure water, and are preſerved by a fence of rough ſtones. On the weſtern iſthmus, near the mouth of the Kalmius, there iſſues from the calcareous beds a natural ſpring of cold and ſweet water, which has alſo been partly incloſed, and divided ſo as to ſerve different purpoſes.

A number of large anchors for conſtructing a floating bridge over the Kalmius were lying on its bank, as it was expected in the year 1784, that the Empreſs, on her return from the Crimea, might probably paſs through Taganrog. With this view, the whole road extending to the rivulet Berda was levelled, and ſmall heaps of earth were placed at ſome diſtance from each other, on both ſides of the road, for a purpoſe I did not learn *.

We

* I have been credibly informed by a Ruſſian gentleman, then in the ſuite of the Empreſs, that Prince Potemkin, the Tauridan, had cunningly ordered the peaſantry of the different diſtricts, through which the Sovereign paſſed on her journey

We did not leave Mariupol till the twenty-third at noon. The high ſteppe, over which we again travelled on leaving the ſea-ſhore, is interſected by gently declining dells, the next of which extend towards the Kalmius, while thoſe more remote take their direction to the ſea. The road led in a direct line to the Greek village Manguſh, which is built on the bank of the ſmall rivulet Byeloſaraika, flowing into the ſea, twenty-eight verſts diſtant from our laſt ſtage. It is ſituated on a gentle elevation; the ſtreets are broad and regular, being embelliſhed with neat houſes, many of which are covered with indented tiles. Its environs are very fertile, and the ſea is about ten verſts diſtant from this place. The church is conſtructed of rough ſtones, conſiſting chiefly of granite and gneiſs of different kinds, which are brought hither from the banks of the Berda.—On a future occaſion I ſhall take notice of the dreſs of the female Greek peaſantry, when deſcribing the coſtume of thoſe who inhabit the Crimea. Moſt women here were dreſſed in blue linen, and wore white handkerchiefs round the head.

Scarcely any other but wild horſes, not trained to harneſs, were furniſhed for us at Manguſh; and the peaſants, revelling

journey to Kherſon, to travel with carts and waggons loaded with flour, in order to convince her Imperial Majeſty of their flouriſhing ſituation. But as there happened to be a great ſcarcity of corn in thoſe provinces, the ſoil of which had been deluged with human blood, without increaſing its vegetation and fertility, the diſtreſſed peaſants were obliged to convey ſacks filled with ſand or earth, and duſted over with calcareous marl, a plentiful production of that country; while others, with ſtarving horſes and haggard faces, drove their empty waggons, to perſuade the Northern Semiramis, that they were returning either from the mill or the market, where they had received the rewards due to their labour.—*Tranſl.*

with

with their prieſts, were intoxicated with new wine, which had juſt arrived from the Crimea. Both theſe circumſtances occaſioned conſiderable delay; and, at length, after the horſes were put to our carriages, one ſet of them ran away with one of the baggage waggons, and galloped down the heights into the plain with ſuch fury, that they overturned it into a ditch. Fortunately no perſon received any injury, and the damage done to the waggon was ſoon repaired. We loſt, however, much time by this accident, ſo that we could not purſue our journey till twilight. There was only one ſmall glen, which we were obliged to croſs, and afterwards travelled over an almoſt uniform ſteppe, illuminated by the conflagration of ſeveral tracts of this deſart; thus we arrived at the ſmall river Berda, which is thirty-ſix verſts diſtant from Manguſh. Here we met with a commodious felt-tent prepared for our reception, as well as with the firſt relay of Nagay horſes which were kept in waiting; but, on account of the darkneſs of the night, and the ſteep banks which lay before us, we thought it prudent to fix our quarters on this ſolitary ſpot.

As we approached the Berda, we obſerved that the ſoil was conſiderably mixed with a pulverulent granite. Towards the South of our road was ſituated Petroſkaya Krepoſt, on the extremity of the Lines of the Dniepr, near the mouth of the Berda; and to the North, Sakhariefskaya. The ſea-coaſt is ſaid to be about twenty-two verſts, and Ponavina Khuter, near the Berda, ten verſts diſtant from our laſt place of repoſe.

The ſmall river Berda is, in the Tartar dialect, called Kayalyk; a name which may have been eaſily changed by the Ruſſians into Kayalka, or Kalka: hence it may be reaſonably conjectured

conjectured that this was the rivulet Kalka, hitherto undiſcovered, and near which, according to the account given by the Ruſſian hiſtorians, the united Princes and Polovtzes were firſt defeated by the Tartars. Other writers, though with leſs probability, ſuppoſe this to be the rivulet Kaletz, which empties itſelf into the Kalmius, beyond Mariupol. The breadth of the Berda in no place exceeds three fathoms, and, in general, is only twenty-eight inches deep; its cryſtalline current is rapid, though it does not immediately communicate with the ſea; running in a direction from North to South, in a very deep channel cut through rocks; and, watering ſcarcely any valleys in its paſſage, it purls over a bed of white quartz ſand, conſiſting entirely of decompoſed granite, ſimilar to that which is found mixed with calcareous earth, near Mariupol. The left bank generally declines in an imperceptible degree, and is not nearly ſo rocky as the oppoſite bank, which occaſionally exhibits rocks of granite, as if the channel of the river had here been interſected by a bed of that foſſil. This rivulet contains numbers of exquiſite fiſh, even towards its ſource; and where its courſe is interrupted, ſo that it forms a kind of ditch on the ſteppe, it alſo affords food to numerous lobſters. I found here the *Mya pictorum*, the ſmall Caſpian muſcle, and the beautiful *Nerita littoralis*.

The rocks projecting on the right bank preſent granite and gneiſs, in ſuch uncommon proportions as to deſerve a particular deſcription.—Different kinds of ſolid layers of granite compoſe the firſt rocks, which alternate with ſimilar ſtrata of the ſchiſtus kind, and among which a maſſy bed of red granite was peculiarly remarkable, as it is ſplit by the influence of the atmoſphere

atmoſphere into large and ſmall parallelopipedons, which appear partly decompoſed into gravel. All the beds are bent downwards, at an angle of forty-five degrees, in a ſouth-weſtern direction. At a ſhort diſtance from the place where we croſſed this rivulet, on its upper part, we obſerved that aſſemblage of rocks which I have cauſed to be repreſented in the thirteenth Vignette. The current has conſiderably undermined it in two places. We took particular notice of a ſoft and lamellated granite, which cannot properly be called gneiſs: it was diſpoſed in beds of different degrees of thickneſs, running in a wave-like form, but interrupted towards the South-weſt, and in ſeveral parts interſected and diſplaced by tranſverſe clefts, as repreſented in the Vignette, under the letters *a b c d e f*. Interſperſed among theſe beds, we obſerved three parallel layers of coarſe-grained, red granite, *g h i*; the nature and compoſition of which are obvious, as they cannot be diſtinguiſhed from the granites of original mountains. The layers laſt mentioned are diſplaced by ſimilar clefts; and in the uppermoſt, marked *g*, it is remarkable that the ſame granite deviates from its uſual ſituation, by riſing and deſcending not unlike a wedge, in the cleft *a b*, as if it had been produced at a later period than the granite ſchiſtus of this cleft, or as if it were placed there to fill up the cavity. Nevertheleſs it bears a perfect reſemblance to primitive granite, and is likewiſe cryſtallized with ſimilar compactneſs. Nor are the layers of this lamellated granite of an uniform quality. Some are conſiderably mingled with a black mica, and appear like a micaceous ſchiſtus. The ſtrata, however, are of various degrees of thickneſs, ſometimes not exceeding the eighth part of an inch, though in all the well-mixed con-

ſtituents of a grey granite are perfectly evident: and as its layers are ſituated between ſolid granite, and in a ſimilar direction, it cannot be conſidered as a foſſil of a ſecondary formation.

A ſhort diſtance up the rivulet, we obſerved the rock repreſented in the fourteenth Vignette. Its northern part, *a*, is a grey, ſolid granite; on the contrary, the ſouthern part, *b*, is a ſimilar red foſſil of equal compactneſs: a parallel bed of ſchiſtous granite, *c c*, richly micaceous, ſeparates them from each other, and there can be no doubt, that this bed is of an origin coëval with the granites.

In this ſingular mountain, or rather field of granite, we diſcovered, near the fortreſs of Petrofskaya, and the Ponavina Khuter, a white micaceous ſchiſtus, which was formerly ſuppoſed to be a ſilver ore. There was likewiſe another foſſil compoſed of glimmer, quartz, and granates, breaking in beautiful plates, but the ſtratification of which I could not inſpect. We alſo met with granites in the micaceous ſchiſtus.

Beyond the Berda, the mountains of granite continue tolerably uniform, and do not much project above the calcareous ſtrata; yet in ſeveral places they imperceptibly riſe. We frequently obſerved ſmall hillocks of earth, piled up by the earleſs marmot; but we could not diſcover the leaſt veſtige of woods or foreſts, ſaid to have formerly covered this country *. With the exception of two ſmall knolls of granite, the whole was covered with turf, beneath which this foſſil was often

* According to an account given by Rubruquis, in his fourteenth chapter, the deſart inhabited by the Kumanians, to the Eaſt of Perekop, and which was partly covered with graſs and partly with rocks, at that time abounded in wood.

found

found at a ſmall depth, ſo that in various ſituations it could be diſtinctly ſeen on the ſurface.

After travelling about ten verſts from the banks of the Berda, we arrived at a dry glen, which takes its direction towards the ſea, and where we remarked grey and red layers of ſolid granite: theſe were broken towards the South-weſt. Grey ſtrata of this foſſil, generally conſiſting of pure feld-ſpath and quartz, and with a ſimilar declination, appeared in ſeveral glens extending to the Keltetſhe; a rivulet formed by two ſprings, both running in ſingular meanders over beds of granite ſand; one of which, in ſeveral places, contained deep water. Beyond the rivulet, which runs through an extenſive concave valley, the maſs of granite riſes to its former height, about ſeven or eight fathoms above the level of the adjacent rivulets; this foſſil is uniformly covered with a vegetable mould, productive of various plants, though it occaſionally exhibits ſmall rocky protuberances above the ſurface of the plain. Thus we advanced towards the rivulet Yelanatſh, by the Ruſſians called Butotſhna, which, after its union with the Keltetſhe, empties itſelf into the ſea: the diſtance from our laſt ſtage was computed at forty verſts. The Yelanatſh forms deep marſhes, in a bed of granite ſand, and produces the ſmall, variegated nerite before mentioned, as well as numbers of the *Monoculus conchaceus*. To the left of our road and the rivulet, we obſerved upon an eminence a ſepulchral hillock, erected of various fragments of rocks collected in its vicinity, and on the top of which was placed a ſtatue of rough workmanſhip, with its face towards the Eaſt. This monument appears to be formed of hard granitel, a foſſil compoſed of quartz ſand and granite,

interſperſed with particles of black mica, in the form of ſchorl.

Immediately beyond the Yelanatſh, we perceived rocks of granite, in beds of different kinds and degrees of thickneſs, but all of them lay in a vertical poſition, and extended in a parallel line from N. W. to S. E. On a ſmall tract about twenty or twenty-five fathoms broad, we found, in entire beds, a collection of the following foſſils:

1. A coarſe-grained granite, chiefly conſiſting of quartz, with a few whitiſh ſpots of feld-ſpath, and ſome plates of a thin, brown glimmer, interſperſed through the mineral.
2. A coarſe reddiſh granite.
3. A grey granite, with ſmall particles of black mica.
4. A coarſer ſpecies of granite, with ſtellated particles of glimmer.
5. Another grey ſemi-granite, interſperſed with gold-coloured, ſpiral glimmer, and coarſe grains of quartz.
6. Compact veins, compoſed of feld-ſpath and quartz, as well as thin layers, with a ſmall proportion of glimmer, ſcarcely diſcernible.
7. Laſtly, all theſe beds of granite were again interſected by parallel ſtrata of a coarſe gneiſs-ſchiſtus, mixed with quartz, and abounding in mica.—Here, as well as in the whole maſs of granite, which forms the high plain from the Berda to the oppoſite ſide of the rivulet Karſak, there is nothing, in my opinion, more remarkable than the expoſed ſituation of this granite, which, though of an inconſiderable height, has no

no incumbent ſtrata of other minerals; nay, we could not diſcover on its ſurface any veſtiges of the adjacent ſhell-lime, which is of an almoſt ſimilar elevation; and yet there is no doubt that both thoſe foſſils have, in former ages, been covered by the ſea.

On leaving the Yelanatſh, the bed of granite continues of an uniform height, except where it forms two iſolated knolls; while the verdant plain appears, though leſs frequently than before, covered with ſmall heaps of earth thrown up by the Kaſan marmot, and other ſubterraneous animals. About twenty verſts from the Yelanatſh, we croſſed the fetid and muddy rivulet Kamyſhala, the banks of which are of a ſaline nature, and do not exhibit any traces of granite. Here, and eſpecially along the road, we met with the *Salſola Kali*, a plant which we had not obſerved ſince our departure from the environs of the Kuma.—Beyond the Kamyſhala, the elevated plain again preſents rocky knolls, ſeveral of which, to the right of our road, were covered with various fragments of granite, apparently collected for the purpoſe. Towards the cloſe of the day, we paſſed, on our right, a chain of hillocks, being the firſt of any conſiderable ſize on this extenſive maſs of granite; I therefore determined to viſit them on the following morning. At length we arrived at our night-quarters, near the rivulet Karſak, thirty verſts diſtant from the laſt ſtage; we were guided by the fire of a ſteppe, which afforded a moſt brilliant illumination, but the light of which, as we paſſed along the rocky ſide of the ridge, gradually diſappeared.

On

On the 25th of October, we travelled along the bank of the rivulet; and here, as well as on the eminence, we obſerved but few expoſed rocks of granite, though this ſpecies of mineral lay ſo immediately below the ſurface, that its gravel was every where thrown up by the earleſs marmot. The granite was here of a remarkable compoſition, being extremely hard, ſplit in thick layers, and mixed with feld-ſpath of a dark-red colour; but each ſtratum again, by the partial ſeparation of the glimmer from the feld-ſpath, preſented peculiar ſtreaks, winding in different directions, and reſembling a piece of veined wood. Here the rivulet forms ſeveral ſtanding pools, which abound in lobſters, and communicate with each other only in the rainy ſeaſons.

To the North of our road, and in a direction from S. S. E. to N. N. W. there is a chain of ſmall hillocks known by the name of Karſak, about two verſts in length: I viſited this place, though I was obliged to return five verſts from our laſt night's quarters. The perpendicular elevation of the mountainous ridge above the level of the maſs of granite, does not appear to exceed eight fathoms. It conſiſts of three gentle hillocks, ridged together; at the north-weſtern extremity of which, there is another hillock terminating in a point: but that to the South-Eaſt is the higheſt and moſt extenſive, inaſmuch as it has, over nearly the whole length of its top, a brow of pointed rocks, while the north-weſtern hillock preſents none, and that ſituated between the two laſt mentioned exhibits only a few ſuch projections. The whole of this aſſemblage of rocks appears to be an immenſe maſs of quartz, which, though from the ſuperficial inſpection,

inſpection, and for want of aſſiſtance, at the preſent advanced ſeaſon, I could not ſufficiently examine, yet I am inclined to believe it contains metals. The ſpecies of this foſſil appeared to be a baſtard ſort of granite, of different degrees of thickneſs in its extent, which, in a longitudinal direction, amounts to four hundred fathoms, and about thirty or forty in breadth; ſo that it terminates with the declivity of the hillocks, where the nature of the mineral ſeems to have undergone ſtill greater changes, by the effects of the atmoſphere. On the ſouth-eaſtern hillock, the elevated brow, as well as the projecting rocks of the intermediate hill, are compoſed of a reddiſh ferruginous mixture of quartz, interſperſed in various ways and forms with cryſtals of wolfram, which ſometimes are in a manner wedged in, and ſometimes but ſuperficially ſcattered: the compoſition of this foſſil, however, conſiderably varies in a tranſverſe direction, and at length terminates towards the ſouth-eaſtern declivity, in a ſimple crypto-metalline quartz. The different clefts of this mineral vein, by which it is divided into parallelograms, almoſt uniformly interſect each other in three oblique lines. Firſt, thoſe which are parallel to the progreſſive ſtratification, decline almoſt perpendicularly towards the South-weſt, or at an angle of 70°. Next are the tranſverſe layers, which take a direction from N. E. to S. W. and decline towards the N. W., with a ſimilar or ſomewhat leſs acute angle. Laſtly, thoſe clefts which ſuperficially interſect the two other chaſms thus interrupted, extend almoſt in the ſame direction with this mineral vein, from S. W. by S. towards N. E. by E.; and bend downward to S. E. by S., at an angle of 20°, or ſtill more horizontally. Towards the ſouthern extremity, the direction

direction of the tranſverſe clefts is rather from S. S. E. to N. N. W., and from W. S. W. to N. N. E.; while the more ſhallow interſections, which approach nearer the horizontal ſituation, deviate ſcarcely ten degrees, and incline from E. S. E. to E. by S. Thus the rocks are in a manner graduated by particular diviſions. Towards the ſouth-eaſtern extremity, in ſeveral places where this mineral is of a quartzous nature, and eſpecially in the clefts of ochre, we obſerved thin ſcales of a gold-coloured glimmer; and the ochre itſelf appeared to be interſperſed with particles of gold-duſt. A ſingle day's ſuperficial labour would be ſufficient to aſcertain the nature of this metallic vein.—The cryſtals of wolfram, though in ſome diviſions of the ferruginous quartz not uniformly parallel, nevertheleſs take a direction in a certain degree correſponding to the courſe of the clefts, as well as the veins of ochre; they are of a ſteel colour, of a priſmatic form, and tranſverſely laminated, ſimilar to an iron or lead glimmer, with obliquely terminating points. In ſome places, the iron-black quartz of this vein was not unlike emery; in others we met with ſmall iſolated maſſes of a ferruginous ochre between the clefts; and perhaps, at ſome depth, pyrites might alſo be diſcovered.

At a diſtance of about two verſts, to the Weſt of this hilly ridge, in the plain country, we obſerved a ſmall ſepulchral eminence, formed of ſtones collected in the vicinity, and on which were erected three oblong monuments of granite: the intermediate of theſe rude columns conſiſted of ſpiral layers; and, having in ſome degree acquired a round form, by the decompoſing action of the air, it appeared like an half-finiſhed ſtatue, the prominent face of which was turned towards the Eaſt.

Eaſt. The two other tomb-ſtones were placed at each ſide, in a reclining poſture, and plainly evinced their angular and irregular fracture from the quarry.

After this mineralogical inveſtigation, I haſtened to rejoin my travelling companions, who, during my excurſion, had advanced on their journey.—Beyond the rivulet Karſak, there riſes a ridge of the red-veined granite before mentioned; its elevation is nearly ſimilar to the former bed of that foſſil; it extends between the Karſak and a more weſtern low ground which accompanies this rivulet, and at length terminates in an elevated angle, towards the North-weſt. On the border of the valley, ſeveral tracts of rocks appear on the riſing ſurface; and on the plain the earleſs marmots have here and there burrowed the ſoil, and thrown up the red granite, reduced to gravel. From the low ground before alluded to, the country imperceptibly declines; and, a few ſmall valleys excepted, the plain becomes uniformly level, and exhibits neither traces of granite nor any other kind of foſſil. Below the turf, we occaſionally took notice of ſand, or a coarſe gravel, and the plants growing there almoſt generally correſponded to thoſe formerly found on the ſteppe of Samara. Here the following plants were in bloſſom during the months of May and June; namely, the *Onoſma echioides* and *ſimpliciſſima*, *Salvia nemoroſa* and *nutans*, *Phlomis tuberoſa* and *Herba venti*, *Dracocephalum thymiflorum* and *ſibiricum*, *Nepeta violacea*, *Hedyſarum Onobrychis*, *Aſtragalus hiſpidus*, *grandiflorus*, *contortuplicatus*, *Centaurea moſchata* and *ſibirica*, *Carduus cyanoides*, *Inula hirta* and *odorata*. Of theſe plants,

none is more celebrated, and collected with greater avidity by the females of this country, than the *Onoſma echioides;* its root is long, and appears as if it were tinged with a beautiful crimſon colour; hence the young women ſteep it in oil, and in that ſtate uſe it for painting their faces; a common practice in Ruſſia: and from this circumſtance it is called by the natives Rumanitza; but by the Tartars Krſhah.—Along our preſent road we alſo met, in uncommon abundance, the laſt deſcribed plant, as well as the Kali, the *Artemiſia maritima*, and *Auſtriaca*, *Bromus mollis*, and *Verbaſcum Thapſoides*.

After advancing about fifteen verſts, we croſſed the rivulet Apanly, which forms tolerably large baſons, and is in ſeveral places of conſiderable depth; fifteen verſts farther we arrived at the Gorkaya, or Atſhla, ſignifying the bitter rivulet; and ten verſts thence, at the Gorkoi Kelembet; both theſe having at preſent dry beds, the channels of which were gently excavated, and not nearly ſo deep as thoſe of the preceding rivulets. At length, after proceeding ten verſts from the Gorkoi Kelembet, and having travelled at leaſt fifty verſts from the Karſak, where I parted with my faithful companions, I again met with them in the twilight of a beautiful evening, on the banks of the rivulet Moloſhnya Vody: preparations had been made here for our night-quarters.—This day we ſaw large flights of ſwans, very low from the ground, on their paſſage towards the North-weſt, and likewiſe obſerved numbers of ſmall buſtards in ſearch of their food on the ſteppe.

The place where we ſpent the night, and croſſed the rivulet Moloſhnya Vody, or Milk-water, is called Ovetſhie brod, or the

the Sheep-ford; it lies about one verſt from the commencement of the Liman, a marſh formed by the rivulet, before it enters into the ſea; from which it is about thirty verſts diſtant. On account of the excellent paſturage which the extenſive banks of this rivulet afford, the Tartars call it Sütt, or the Milk-brook; a name likewiſe adopted by the Ruſſians: it flows through a large valley of a ſandy ſoil, rather of a ſaline nature; and it is obvious from its natural, though inconſiderable banks, that in the winter and ſpring ſeaſons it contains a greater body of water. In this neighbourhood, it runs between narrow banks, and its water is freſh and potable; but after advancing twenty-five verſts farther, the high land again approached its environs, and the black ſoil re-appeared. On both ſides of the Liman, there are many ſaline tracts, and the water itſelf is ſaltiſh and turbid. This marſh, together with the adjacent low country, ſeems to have originally been a marine bay, which, like the inlets of the rivulets we croſſed ſince our departure from Mariupol, as well as the Berda itſelf, have no other communication with the ſea than that occaſioned by the high ſpring-tides. Ten verſts from Ovetſhie brod, we paſſed the rivulet Taſhanak, which empties itſelf into the Liman, and the high country thence extends to the South-eaſt, where it forms a kind of iſthmus: here the ſoil of theſe eminences again preſented a blackiſh ſtratum, but with a conſiderable intermixture of ſand.

Between the rivulets Berda and Moloſhna, we met with wandering Nagays; a very ſmall remainder of that numerous horde which was lately diſtinguiſhed by the name of Kubanian Tartars: they have only within the laſt two years been tranſferred from their former habitations in the vicinity of the

Kuban, to theſe beautiful paſture-grounds, where they enjoy tranquillity and abundance; for, while dwelling between the turbulent Circaſſians and Kalmuks, they were involved in continual warfare. At preſent the ſteppe of this country is too extenſive for their flocks, which, however, it is to be hoped, will progreſſively increaſe together with their population. The Privy Counſellor VON SHEGULIN, late governor of Taurida, has rendered an eſſential ſervice to the ſtate, by diſtributing ſeed-corn, and encouraging thoſe Nagays who were hitherto unſettled, to devote themſelves to agriculture; a meaſure which has been attended with ſo much ſucceſs that they have become induſtrious huſbandmen, and are enabled to furniſh the port of Koſlof, or Eupatoria, with the principal quantity of that excellent ſummer-wheat called Arnautka, which is thence exported. Nay, there is every proſpect of colonizing and permanently ſettling them in villages built for their accommodation during the winter ſeaſon. Theſe Nagays poſſeſs no camels, their oxen and cows are generally ſmall, like thoſe of the Circaſſians, and the Tartars who inhabit the mountainous parts of Taurida; but when harneſſed to the two-wheeled carts, or Araba, in which they tranſport their moveable huts and domeſtic furniture, their cattle run equally light and ſwift. Although their horſes are in general ſmall, and of an indifferent breed, having hoglike necks, and a projecting head, yet they are ſtrong, tractable, and hardy. Nor are their ſheep ſuperior to the ordinary kind bred in Taurida, with long tails, which at the upper end are longitudinally covered with pieces of fat, but are round and thin towards the lower extremity. In ſummer, theſe people, with their flocks, travel northward

ward along the banks of the rivulets, where they ſow wheat and millet in remote places, and neglect all farther cultivation till the time of harveſt. At the return of winter, they again approach the ſea of Azof, near which they find graſs preſerved for forage, and, perhaps, a remaining ſupply of that hay which they had formerly made in the valleys.—No other tribe than that of Yediſſan, whoſe chief, BAYASID BEY, is likewiſe appointed by government to the command of the two others, is permitted to wander along the banks of the rivulet Moloſhna. The paſtures of the Ulus Dſhamboiluk lie near the rivulet Karſak, and thoſe of the Ulus Yetiſhkul, are on the banks of the Berda. Excluſive of the Nagays who remain at the Kuban, the three tribes conſiſt of about five thouſand men; that of Yediſſan, compriſing three thouſand four hundred and twenty-five; Yetiſhkul, five hundred and thirty-three; and Dſhamboiluk, one thouſand one hundred and three perſons. They belong to Melitopolſk, a diſtrict ſubject to the Tauridan government, but the capital of which is not yet eſtabliſhed. They have no princes, nor any other titles of diſtinction, than thoſe of their Murſes, or Nobles, of whom the two families of Suban-kaſi, and Edei-oglu, have aſſumed the title of Bey, and are held in the greateſt eſtimation.

The Nagays, as well as their kinſmen near the Lines of Caucaſus, and the Akhtouba, live in ſmall huts conſtructed of felt, the largeſt of which are from about four to five and a half arſhines in diameter, and, like thoſe of the Kundure Tartars, cannot be taken to pieces, but are placed by two men upon a carriage, and thus removed from one place to another *.—The

* According to POMPONIUS MELA, and other ancient geographers, the Agathyrſes and Sauromates, who by the Greeks were called Hamaxobites, or people living

huts of the Nagays are diſtinguiſhed from thoſe of other tribes by a vent-hole for conducting the ſmoke, and a cover applied to it with a handle from which a line is ſuſpended for the purpoſe of opening and cloſing the aperture, and ſecuring the hut from the inclemency of the weather. Mats of reeds, and wooden work much withered and ſmoked, like that of their Arbes, are employed to line the walls of the huts: for, as theſe tribes are deſtitute of timber*, they are obliged to purchaſe it in Taurida, at a conſiderable price.

The dreſs of the men conſiſts of ſheep-ſkins, and a coarſe kind of cloth; their caps are of different ſhapes, but thoſe moſt generally worn are ſmall and round, ſo as to cover the head only as far as the ears, and are manufactured of lamb-ſkins. Such caps are made of cuneated pieces, like the caps of children in Germany, and are either plain, or adorned with fur. In order to give a ſpecimen of the dreſs of their women, I cauſed a drawing to be made of that of a young lady, the daughter of BAYASID BEY, before mentioned. An engraving of this drawing, being an exact reſemblance, is given in plate 24, where ſhe is repreſented in company with her mother, and a female ſlave. Her features reſemble thoſe of her father, and are peculiar to the Mongole tribe, as is remarkable in moſt of the Nagays, though her

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living on carts, inhabited the borders of the Mœotic pool, or Sea of Azof. Hence it appears, that ſimilar manners and cuſtoms then prevailed in this neighbourhood, which was perhaps peopled by the ſame race.

* The poles of their huts are generally made of hazle, and are ſold at a high price by the Mountain-Tartars of Taurida, at Koſloff. They are brought hither by the Nagays, who furniſh this market with wheat.

mother

mother is of a different race.—Girls generally wear Circaſſian caps; and married women have adopted the veil, according to the cuſtom of that nation. The females of this caſt are not very remarkable for modeſty. Conformably to the uſage of all Aſiatic nations, a Kalim or marriage portion, which, with the opulent, conſiſts of forty mares, two horſes completely capariſoned, a ſuit of armour, a gun, and a ſabre is, on the celebration of the nuptials, delivered to the father of the bride. Their food, like that of the ancient Mongoles, conſiſts principally of horſe-fleſh and mares' milk;—this mode of living is, however, entirely relinquiſhed by the Tartars of the Crimea.—The language of the Nagays is ſaid to vary in many reſpects from that ſpoken in Taurida, which is a Turkiſh dialect. Theſe people poſſeſs more activity and vivacity, but they are likewiſe more rapacious and ungovernable, than the inhabitants of Taurida, and retain the primitive cuſtoms of their forefathers, as well as a predilection for a wandering life.

From Moloſhnya Vody, or more properly ſpeaking from the above mentioned Taſhanak, where the low country terminates with a remarkably large ſepulchral hillock, another high and very level ſteppe commences, upon which we again obſerved a few curious monuments, conſtructed of flat, very light and porous bricks, and undoubtedly of Tartarean origin. We croſſed two rivulets, called Oetluk, or Utluk, which have deep, though ſhallow water, and unite at a diſtance of forty verſts from the ſea-coaſt. The beds and ſhores of theſe rivulets, particularly of the latter, which is denominated Klukva, and is fordable

fordable twenty verſts from Ovetſhie brod, are ſlightly impregnated with ſalt; and the wells dug in the blue clayey ſoil yield a green brackiſh water: the weſtern banks of both rivulets are ſteep and high; the caſtern banks, on the contrary, gradually decline. Near the latter we obſerved workmen employed in erecting a Ruſſian farm-houſe of unburnt bricks, according to the cuſtom of this country;—a very advantageous method of building in provinces deſtitute of wood. In a ſimilar manner, the Kirghis, a Tartarian tribe, who inhabit the country beyond Perekop, conſtruct their houſes in permanent villages, and apply themſelves to agriculture and manufactures. Of ſuch villages are about thirteen in number; and at the time we paſſed through them, each contained about forty habitations.

From the ſecond Oetluk, our road which had hitherto extended weſtward, now turned to the South-weſt, towards Perekop. There is, however, another public road at that rivulet, which runs ſouthward to Tonkoi Prolif, (narrow ſtrait,) or, as the Ruſſians call it, Yenitzſhee, where there is a ferry leading to the iſthmus of Arabat. Waggons laden with proviſions and other articles of commerce, to and from the eaſtern parts of the Crimea, are ferried over at this place, as is alſo the ſalt obtained from the brackiſh water of the ſmall lakes ſituated on the neck of land before mentioned.

At one o'clock we left Oetluk, and though travelling at a ſmart trot, it was ſix o'clock in the evening before we reached the wells of the country of Tſhernye Kopani, or, in the Tartar dialect, called Kara-Kuyu; ſo that the diſtance muſt have been more than forty-five verſts. The level, barren, and generally ſandy ſteppe, over which we travelled during the laſt twenty verſts

verſts, gradually declines towards the ſouth. In the following night there was the firſt fall of rain we had experienced ſince our departure from Taganrog.

On the 27th of October we had a view of the extenſive valley called Kara Kuyu; it is of a black ſoil ſimilar to many others on this ſteppe, which extend to the banks of the Dnieper. A ſerpentine, ſaline marſh reaches ſo far as the Sivaſh, or, as it is called, Putrid Sea. We here found the *Glycirrhiza echinata*, a plant not to be ſeen in Taurida, *Salſola ſoda*, *Polycnemum dichotomum* and *Ferula orientalis*, intermixed with other ſaline vegetables.—The whole of this ſoil, like that on the low grounds of this ſteppe, has, on its ſurface, a very black and rich mould, probably produced in conſequence of its having once been a ſedgy marſh of luxuriant vegetation, which, by the ſubſequent proceſs of putrefaction, has been gradually changed into this excellent manure. The heights of the ſteppe, which are rendered ſtill more pictureſque by the view of ſepulchral, or ſignal hills*, conſiſt of a reddiſh clay. We travelled upwards of twenty verſts on the low grounds of Kara-Kuyu, till we arrived at a conſiderable height, from which we enjoyed a proſpect of the north-weſtern gulph of the Sivaſh, and its tolerably ſteep ſhores. After a journey of thirty-ſix verſts, we reached the village of Kuyenly, which is ſituated on an argillaceous ſoil, near ſeveral wells, and extends to the above mentioned gulph. The inhabitants of this village are Kirghis Tartars who, beſides

* There is no doubt that in ancient times, particularly in the Crimea, and the ſteppe of the Dnieper, many hillocks were raiſed as watch places, or land marks.

their agricultural purſuits, carry on a briſk trade in grain, cattle, and other articles, with the Nagays. Their domeſtic economy is ſimilar to that of the inhabitants of the Tauridan ſteppes; they generally dwell ſeparately, upon ſcattered farms; and the habitations, ſtables, ſtore-houſes, hay and corn ſtacks, as well as piles of fire-wood belonging to one family, are ſo arranged as to form the premiſes into a regular ſquare. Moſt of the houſes conſiſt of a hall, with a hearth for culinary purpoſes: the paſſage for emitting the ſmoke, as well as the chimney, are made of wicker-work, coated with clay. An apartment is furniſhed with a ſmall ſtove of a cubic form, and a low ſofa covered with cuſhions and carpets, or felt. Another room, provided with ſimilar articles, is appropriated to the uſe of the women, and the ſmall window frames are throughout covered with expanded bladders, inſtead of glaſs. The fuel, which they call Tiſak, is a compoſition of cow-dung, and the excrements of other animals, collected in autumn, mixed with plants and ſtraw, and formed into pieces not unlike bricks. Theſe pieces are placed in heaps or thick hollow walls of a rectangular form, the inſide of which is filled with dry dung. In order to exclude the rain, the outſide of theſe heaps is plaſtered over with freſh cow-dung, and covered at the top with dry ſtalks of plants, particularly thoſe of a curious *Centaurea*, which is called Kurai *, and grows

* This ſpecies of *Centaurea*, which appears to be unknown to Botaniſts, is very common as well in Taurida, as on the whole of the ſteppe of the Dnieper. Notwithſtanding its dry, hard, and ſharp ſtalks and flowers, it affords the beſt winter-fodder for ſheep, and is, therefore, cut down in large quantities. It bears the greateſt reſemblance to the *Centaurea ſalmantica*, but its flowers are very ſmall, and the ſtalk branches out with pennated leaves.

abundantly

abundantly in this country. Laſtly, the whole is ſecured with green ſods, to prevent theſe plants from being diſperſed by the wind, as they are alſo uſed for fuel.

The roofs of their huts are conſtructed of thin rafters, tranſverſely covered with reeds; above theſe is placed a ſtratum of dry plants, and afterwards turf or loam. The incloſures of their farms are made of green ſods, and the tops covered with two boards forming an acute angle; the walls of the houſes, on the contrary, are built of large, unburnt bricks, and coated with clay or cow-dung; and ſometimes of turf or Tiſak. The ſtables are erected of wicker-work plaſtered over with cow-dung. Theſe Tartars conſtruct their mills under ground, within a covered place; the machinery conſiſts of an horizontal indented wheel, three fathoms in diameter: it is turned by an engine above ground, which is worked by horſes or oxen. This wheel acts upon another ſmall cogged wheel which turns the millſtone, and is placed at the entrance of the ſubterraneous room.—On their very fertile loamy ſoil, they principally cultivate wheat, barley, and millet; but it is unfavourable to the production of rye.

During the whole of our journey on theſe ſteppes, we met with only a few Armenian and Greek carriers, who were conveying the white-wine of Taurida to Nakhtſhivan, where it is converted into Champaign and Rheniſh, for the uſe of the provincial towns. Yeſterday, however, the ſteppe became more lively, as it was traverſed, ſometimes by the tranſports of ſalt paſſing from Taurida to the governments of the interior country, and ſometimes by Greek ſhepherds, who, at this ſea-

ſon of the year, migrate in a ſouthern direction with their huts, implements, cattle, and flocks, towards the ſea and the Dnieper, where they find good paſturage in the vallies, and a warmer climate.

On leaving Kuyenli, we croſſed a conſiderable height adorned with large ſepulchral hills; then proceeded through a valley to the village of Yerſhi, five verſts diſtant; and afterwards again paſſed ſeveral eminences. Advancing to the left towards the Sivaſh, which may be ſeen from the heights, we arrived at the village of Dſhepe, which is at a diſtance of twenty verſts. From this place we purſued our journey; and after having travelled ſeven verſts farther, we reached the village of Tugerek, ſituated on the left of the road near the Sivaſh, where we obtained accommodations for the night. We obſerved many other villages at a diſtance, of which that of Kyptſhak is remarkable, on account of its name.—This afternoon a collection of thunder-clouds brought down a heavy ſhower of rain, which was ſpeedily ſucceeded by ſun-ſhine. The ſteppe, which riſes but little above the ſea, is diverſified with vallies, which decline towards the Sivaſh, and exhibit many traces of the ravages committed by floods. Some of theſe low grounds are inundated by that river, when its waters are ſwelled by long continued eaſterly winds, for which reaſon, inſtead of proceeding along its bank, the uſual road, we were obliged, on the 28th of October, to take a circuitous route of ſix verſts, over an uniform ſaline plain, and paſs the villages of Koi-Tſhokrak and Kutſhuk-Tſhokrak before we arrived at Perekop. Here, by the recommendation of my old friend

HABLITZL,

HABLITZL, we met with a moſt hoſpitable reception from Lieutenant Colonel TARANOF, inſpector of the ſalt-lakes; under whoſe hoſpitable roof, on account of the badneſs of the weather, we remained till the following day.

END OF THE FIRST VOLUME.

On the 14th of September I returned to Georgiefsk. An attempt was at this time making to induce the Circaſſian princes voluntarily to appoint regular judges, for ſettling their controverſies, and terminating their continual feuds. It was propoſed to eſtabliſh two principal tribunals for the Princes, and two others for the Uſdens, or Nobility; whoſe members were to receive ſalaries aſſigned them by the Imperial Court. The Princes, indeed, had been prevailed upon by the good offices of the preſent Mufti, appointed by the Kaſan Tartars, as well as by the armed mediation, which conſiſted of a ſtrong body of troops, encamped on the banks of the river Bakſan, and commanded by Major General Savelief, to make choice of judges. On the 15th of that month theſe judges were preſented by the families of the great Kabarda, and on the ſubſequent day by thoſe of the ſmall Kabarda, to the Governor and General Ivan Vaſſilievitſh Gudovitſh, who reſided at Georgiefſk. They elected as Preſident of the tribunal of Princes, with a penſion of two hundred rubles a-year, Prince Dſhangot, ſon of Sedak, for the families of Miſauoſt and Ataſhuka; and for thoſe of Bekmurſa and Kaituka, of the ſmall Kabarda, they choſe Ali, ſon of Salatkireef; as aſſiſtant judges, with ſalaries of one hundred and fifty rubles each, were nominated the Princes Muſſa and Adilgirei, the former being the ſon of Karamurſa, and the latter of Temruk Hadſhi; farther, for ſerving in a ſimilar capacity to

both tribes, they appointed Ataſhuka ſon of Khamurſa, and Ataſhuka ſon of Kaſi. The tribunals of the Nobility were, for each Kabarda, compoſed of a reſpectable Uſden as Preſident, with a ſalary of one hundred and thirty rubles, and ſeven noble and eccleſiaſtical aſſiſtant Counſellors, who were to receive only one hundred rubles per annum.

Theſe tribunals were to hold their ſittings near the banks of the Bakſan, where a camp was pitched on the occaſion. As the ceremony of their inſtallation was likely to be attended with tumult and riot, eſpecially among ſo diſorderly a people, I was induced to make an excurſion to the mountains as far as the encampment of the Ruſſian troops: on this ſhort journey I was accompanied by the polite and cheerful Mufti.

In the morning of the 19th we croſſed the rapid Podkuma, which rolls over a bed of flints, having, on the left towards Georgieffk, an elevated bank, and on the right a vaſt low country, which imperceptibly riſes, and is covered with trees and bruſh-wood; where I remarked a ſpecies of red cherry in great abundance. Over this buſhy country alſo runs the rivulet Yetoka, remarkable for an antique ſtatue *. On purſuing our journey, we next arrived at an open ſteppe; on our left we obſerved ſome eminences; and a few verſts farther, we deſcended to an extenſive and ſomewhat declining plain, whence we could ſee at a diſtance the terrace of a higher ſteppe, ſimilar to a ſteep ſhore of a conſiderable extent, and marked by bays.

The low country is interſected by the rivulet Saluka, or Solka, which runs over a bed of granite, ten verſts from

* See the Travels of Güldenſtädt.

Georgieffk.

Georgieffk. On the ſide of this rivulet, and below the ſhore before alluded to, winds a marſhy branch of water covered with ruſhes, on the banks of which are ſituated ſeveral farms belonging to the fort of Mariinſka, built on an adjacent eminence.

On reaching this apparently ancient ſhore, which extends along the Solka, and is connected with the high country on the banks of the Kuma*, into which the Solka falls near Alexandrofskoe Selo, we ſaw before us an entirely dry, but verdant and very fertile plain, where the large *Crambe orientalis* grew abundantly and in luxuriance; while it produced the ſecond leaves of the ſeaſon.

The Ruſſians call this plant Katran, the Tartars Toturgan, and the Circaſſians Batirgan.—Its roots reſemble thoſe of the horſe-radiſh, but were often thicker than a man's arm, above an ell deep perpendicularly in the ground, blunt at the end, and ſurrounded with ſmaller roots at the extremity, about the thickneſs of a finger, which grew ſtill deeper than the parent root. They are dug up for the uſe of the table, as a ſubſtitute for horſe-radiſh, and the younger flower-ſtalks may be dreſſed like brocoli. The ſame ſtalk, when withered and dry, is broken by the wind, and diſperſed with its ſeeds in various directions, ſo that it ſpreads to a diſtance of ſeveral feet, and produces round buſhes of new plants. The waggoner of Little Ruſſia, who travels through this country, gathers thoſe ſtalks, and uſes them as fire-wood when he encamps on the road. Although

* Compare what has been ſaid in page 78 and following, relative to the probable ancient ſhore of the Caſpian Sea, on the right bank of the Kuma.

the

the ſeeds of this plant are carried by the winds to the northern part of the ſteppe, it does not propagate in the country ſituated between the Volga and the Don: while in the Crimea, and on the banks of the Dniepr, it grows abundantly, and conſequently appears to thrive only in a ſouthern latitude. The level ſteppe continued without interruption for fifteen verſts farther, till we arrived at an extenſive valley, upwards of ten fathoms deep; its bottom is full of pebbles, over which the little rivulet Kuria, or Kura, flows between ſmall buſhes and cabbage gardens.

On the oppoſite bank, which is equally high and ſteep, is ſituated the miſerably built fort Pavlofskaya, ſtrengthened with ramparts and gabions.

The deep and extenſive valley of the Kura, the ſoil of which conſiſts entirely of pebbles, has doubtleſs been originally produced by a much larger ſtream than that of the little rivulet at preſent almoſt imperceptible; and as this valley progreſſively extends, and riſes towards the Weſt and South-Weſt, as far as the river Malk, in the country of Byeloi Metſhet, it is highly probable that this river, which rolls over ſimilar pebbles to thoſe found in the valley, muſt formerly have had its efflux into the ancient and more extenſive Caſpian Sea. Perhaps a part of this ſtream at that remote period flowed over the ground, preſenting traces of the Solka towards the river Kuma, and had a common mouth with the latter; after running over a tranſverſe valley ſituated between Byeloi Metſhet and the rivulet Solka. This, like that of the Malk, preſents a bed full of pebbles, and its current has certainly been changed in later times, as is evident from its traces, which ſtill exiſt between

Solanoi

Solanoi Brod and Proſhladnoe.—Nay, it is even probable that the Bakſan, the Terek, and other rivers, may formerly have emptied themſelves into the ancient Caſpian Sea, after running from the mountains in a ſtraight northern direction, while they depoſited the quartz ſand carried along with them, and thus produced the tracks of drift-ſand on the ſteppes between the preſent river Kuma and the Terek.

In the valley of the Kura, I obſerved the *Centaurea ſolſtitialis* ſtill in flower. We changed horſes on the other ſide of the fort, in the contiguous village inhabited by Kozaks.

The plain now gently riſes towards the river Malk, which, after travelling ten verſts, we reached near Soleiman Brod: here was a redoubt, guarded by Kozaks of the Ural. This river runs over a bed of pebbles, between argillaceous banks, partly abrupt, but ſcarcely in any place more than two fathoms high: the pebbles in its bed were reddiſh, whitiſh, and grey granite; black baſaltes, appearing perfectly porous; blackiſh, greeniſh, and brown porphyry; a few ſpecimens of red jaſpers, marked with veins ſimilar to quartz; and laſtly, a variety of calcareous concretions. At this ſeaſon the water ſcarcely reached the bellies of our horſes, and had a rapid current. The buſhes we obſerved growing in the low country oppoſite to the river, conſiſted of the *Hippophæ rhamnoides*, red and almond-leaved willows, between which grew numbers of wild creeping bramble-berries, and the *Althæa hirſuta*; while on this ſide of the river we met with the *Amaranthus Blitum*, wild hemp, the *Mentha ſpicata*, *Xanthium*, and a variety of thiſtles.

As ſoon as we had paſſed the Saluka, we frequently met with corn-fields belonging to the Circaſſians who inhabit the contiguous

guous villages, and were now getting in the harveſt. After a journey of ſome verſts, over a level eminence, we arrived, on the oppoſite ſide of the Malk, at an extenſive plain, which was interſected by two rivulets, running between ſoft and ſhallow banks. Near one of theſe rivulets, called Sholkuſhin, the Circaſſians were, in the year 1779, attacked by the brave General DE FABRICIAN, who diſperſed and defeated them after a great ſlaughter; a victory which is well atteſted by the large ſepulchral hillocks containing the bodies of the ſlain, and the declining tops of which have formed cavities. Some diſtance farther, on our left, we viſited ſeveral Circaſſian villages, belonging to Prince DEVLETUKA, of the tribe of Tambi.—Around theſe villages, on the high ſteppe, we noticed many mounds of earth which did not appear to be of Circaſſian origin, but rather to belong to a very poor tribe of people; becauſe they generally contained no articles of value, except a few fragments of iron-work. But here and there we alſo met with Circaſſian monuments, conſiſting either of brick-work, or piles of ſtone; and in a ſtraight line towards one of the villages, we diſcovered reſpectable ſepulchral monuments appropriated to the family of Prince DSHAMBULAT. In a direction from Eaſt to Weſt, though not in a regular line, we counted ſix tombs built of ſtone, ſuch as are repreſented in the ſeventh Vignette, all being regularly conſtructed of a ſoft ſpecies of the *Saxum metalliferum*, or Piperino. Before the laſt mauſoleum towards the Weſt, we obſerved a ſepulchral hillock, called Kurgan, on which is placed the tomb of a Hadſhi, with an inſcription-ſtone; in the vicinity round it there were many other ſepulchres, partly built of a white, ſoft lime-ſtone, and partly ſurrounded with rails of wicker-

wicker-work, or ſimply covered with heaps of ſtones. The next and moſt conſiderable monument is an open ſquare wall of ſeven arſhines extent, with a globe on each corner. Our attention was next engaged by two octagonal chapels built of hewn ſtones, having very thick walls, which terminated in a vault, and were ornamented with a globe; their diameter meaſured nearly two fathoms, and in the inner height two fathoms and an half. About three paces farther there was a ſtill larger wall, ten arſhines ſquare, decorated alſo with a globe on each corner; and twenty-four paces from this, we came to another ſquare chapel, ſix arſhines in diameter, and covered with a ſquare vault. At a diſtance of twenty paces to the South of the latter, we obſerved a ſtone upwards of ſix feet high, in an erect poſture; which was perforated on two of its corners. A little to the South, near the firſt ſquare wall, we noticed, in a declining ſituation, a ſmall ſepulchral building, forming an oblong ſquare, ſix feet high, and covered with a roof in the form of a wedge. All theſe buildings have on the ſouthern ſide, and in the middle of the wall, a ſmall window, which ſerves as an entrance by means of a few ſtone ſteps: above theſe windows is fixed a ſtone exhibiting Tartar characters, hewn out in the form of bas relief, and generally painted over with a reddiſh colour, but which I had not time to copy. All theſe tombs are built of a ſoft *Saxum metalliferum*, eaſily wrought by the ſtatuary, and with a white marl ſtone of equal ſoftneſs.—Among the ſtones of theſe ſepulchres I found a ſpecies of black and red lava, which was perfectly diſtinguiſhable, and muſt have proceeded from a volcano which formerly exiſted

in ſome part of the promontory of the Caucaſus; but notwithſtanding my inquiries I could not learn its proper origin.

After paſſing the ſmall rivulet Bakſan-yſh, at a diſtance of nearly ten verſts, over a gently riſing and moſtly level ſteppe, we arrived at the camp near the river Bakſan, to which place our journey was directed. Soon after croſſing the Malk, we had a view of the ſnowy mountains, and ſaw them progreſſively more diſtinct. Near the camp itſelf, which was ſixty verſts from Georgieſſk, they appeared very near to our ſtation. The Elburus, the diſtance of which is here computed to be thirty or forty verſts, or according to others it is reckoned eleven hours travelling on horſeback, conſequently about fifty-five verſts *, was ſituated a little to the right, the ſnowy mounts of Tſhegem and Bakſan directly oppoſite to our view towards the South, and the others in a line extending to the South-Eaſt. Before we reached the camp, we obſerved, in a lateral direction on the plain, two ſolid rocks of granite, one of which, on examining it more cloſely, I found to be upwards of twelve cubic fathoms projecting above ground, and forming an obtuſe, irregular pyramid. On each of theſe rocks grew the lichen; conſequently they could not be that ſpecies of granite which is decompoſed in the open air.

The whole of this plain where the encampment ſtood was covered with fine verdure; its bed conſiſted partly of pebbles and partly of ſolid granite, which riſes above the ground, and exhibits in many places on the ſurface a fine white ſand, produced by the decompoſed granite, and mixed with a great

* It is ſaid that this mount is equally diſtant from the Beſhtau.

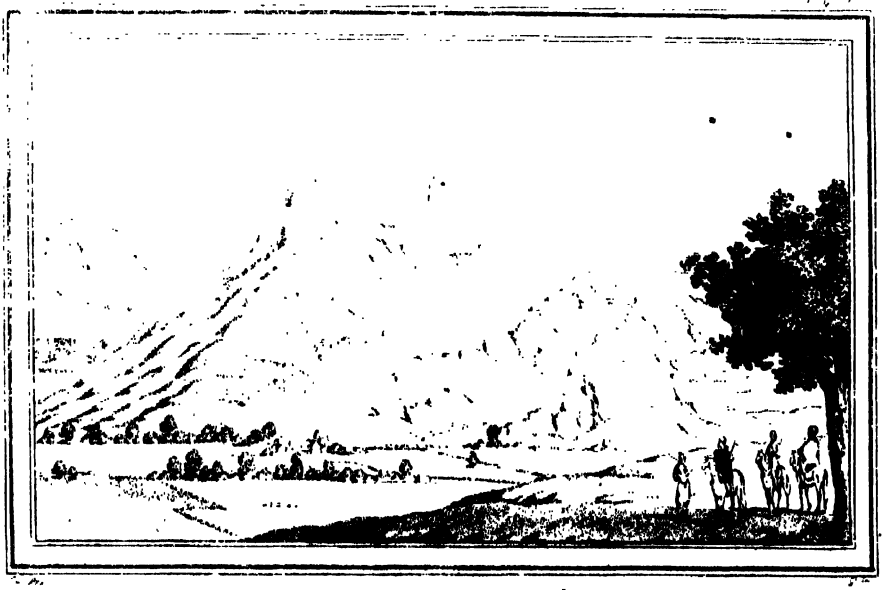
proportion

proportion of micaceous particles. The plain, which extends a great diſtance to the North, becomes narrower towards the mountains in the vicinity of the Bakſan, where it is confined between level eminences on the left, and a chain of tolerably high mountains on the right of the river; ſo that the Bakſan at length continues its courſe between high banks, with a violent noiſe, over a bed of large and ſmall pebbles: during the floods of ſpring, the rapidity of this river is almoſt irreſiſtible, inſomuch that it can only be provided with temporary bridges. The mountains on the oppoſite ſide progreſſively riſe as they approach the river, and at length form a ſteep rocky wall, which terminates in a lofty angle called Kiſburun, or the maiden peak, the height of which muſt be at leaſt forty fathoms. Theſe precipitate walls contain lenticular, white concretions of lime-ſtone, which are depoſited in a whitiſh, calcareous matter intermingled with ſand. The left bank, on the contrary, to the height of ſeven or eight fathoms above the river, conſiſts entirely of different pebbles, chiefly of a whitiſh granite and porphyry, among which were large and ſmall lumps of granite, in ſo decompoſed a ſtate, that they crumbled to pieces on the ſlighteſt touch. All theſe irregular maſſes are accumulated and adjuſted to each other, without adhering by any cement, and have an incumbent ſtratum of clay nearly two fathoms thick, and a black vegetable ſoil. The bed of the Bakſan, for the moſt part, conſiſts of ſimilar pebbles: on its right bank only we met with lime-ſtones. The *Galega officinarum* grows here near the bank, rather of a dwarfiſh ſize. On the projecting banks of the Bakſan we found numerous buſhes of the *Hippophaë rhamnoides*.—Towards the ſource of this river are ſeveral Circaſſian

villages: we took notice of a much greater number now in a deſolated ſtate, and overgrown with luxuriant nettles, wild hemp, burdock, the *Onopordum*, *Echinops*, *Rubus cæſius*, wormwood, and mugwort. The hemp of theſe regions, like that of Boulogne and China, uniformly produced variegated ſeeds, and frequently grew to the height of ten feet, covered with a very firm bark, of which the Circaſſian women make thread and ſtrings.

On arriving at the camp, we were received in the moſt friendly and polite manner by Major General SAVELIEF, and paſſed two very pleaſant days there, though the coldneſs of the nights already began to be ſenſibly felt. On the 21ſt of September we returned to Georgiefsk, as the advanced ſeaſon rendered it neceſſary for us to accelerate our journey to Taurida.

Vign. 8.



An Account of the Nations inhabiting the Caucaſus, particularly the Tſherkeſſians, or Circaſſians.

DURING my ſhort reſidence near the mountains, I had an opportunity of collecting a variety of information relative to the inhabitants of the Caucaſus. Much has already been ſaid of the numerous nations ſpeaking different languages, and reſiding within the precincts of theſe mountains. Some writers have been inclined to admit almoſt as many different races of people as there are principal names of tribes and families. GERBER, and others after him, have eſpecially contributed to multiply them. GULDENSTADT is the firſt who has the merit

of

of reducing the ſmall ſcattered tribes to certain claſſes, and of combining the names belonging to a particular tongue, by collecting accurate vocabularies. Being imperfect, however, in what related to their manners and cuſtoms, he probably confided to his memory the taſk of filling up the chaſms found in his papers, when death prevented their completion. Induced by theſe conſiderations, I have endeavoured as much as poſſible to acquire accurate information on this ſubject, partly by ocular inſpection, and partly from the accounts of perſons who were well acquainted with that mountainous country: among theſe I ſhall with gratitude record M. DE STEDER, Lieutenant-Colonel and Quarter-Maſter in the Ruſſian ſervice. The fruits of my reſearches I propoſe to communicate to the reader, without attending to the ſimilarity of my accounts with thoſe of GULDENSTADT; as I ſhall leave the farther comparative inveſtigation of the leading facts, to future travellers. The tribes of nations, having been exactly claſſified by the laſt-mentioned writer, I ſhall in this inſtance generally adopt his method, as well as the geographical ſituation he has deſcribed, while I ſhall notice the tongue peculiar to each tribe. In this narrative, however, I propoſe to comprehend only thoſe nations which inhabit the northern parts of the Caucaſus, becauſe they are more intimately connected with Ruſſia, and have at different periods in a great meaſure acknowledged its ſovereignty.

The following tribes inhabit the country ſituated towards the Weſt of the Black Sea, beginning with the ſource of the river Kuban, which riſes from the beforementioned Elburus, the higheſt mount of the whole Caucaſus.

1. The

1. The ſmall Abaſa or Altikeſek, ſignifying the ſix tribes, namely,

1. Shantemir.	4. Lou.
2. Klitſh.	5. Bibert.
3. Keſha.	6. Dudaruk.

The people of this ſmall Abaſa, or Altikeſek Abaſa, inhabit a country between the rivulet Maraukh and the river Podkuma: they conſequently occupy part of the Turkiſh and part of the Ruſſian frontiers. Not ſubmitting to the government of princes, but being ruled by the elders of tribes, they conſider the Kabardines as ſubjects. Theſe, on the contrary, ſtriving for independence, have, on account of ſuch diſſentions at various times, more or leſs adhered to the Ruſſian ſuperiority: a great proportion of this high-ſpirited people have maintained their liberty, by reſorting to the narrow defiles of the mountains beyond the Kuban. The following tribes have lately acknowledged the ſovereignty of Ruſſia, and are at preſent ruled by the commandant of Conſtantinogorſk.

1. Lou, or the Lovova family, conſiſting of fifteen hundred perſons.

2. Bibert, or the Biberdieva family, amounting to ſixteen hundred perſons.

3. Klitſh, or the Klitſheva family, of ſix hundred perſons.

4. Shantemir, or the Shantemirova family, compriſing ſeventeen hundred perſons.

Theſe families inhabit the riſing country ſituated in the vicinity of the rivers Kuma and Podkuma, and live ſcattered in ſmall villages. The Abaſſines were Chriſtians, but their nobles now profeſs the Mahometan religion. In their manners, dreſs,

dreſs, and mode of living, they reſemble the Circaſſians; and there is likewiſe ſome ſimilarity between the languages of the two nations. Although the former purſue agriculture, they maintain themſelves chiefly by the rearing of cattle, and poſſeſs tall and beautiful horſes. They would be a wealthy people, according to their ideas of property, if the Circaſſian Princes were leſs deſpotic and rapacious in their demands. On their ſurrender to Major General FABRICIAN, they were declared independant of theſe petty tyrants; but during the government of the ſucceeding and more indulgent commanders, they were again ſubjected to the yoke of the imperious Kabardines. At length, they were even in a manner intruſted to the inſpection of the latter, in order to prevent, as it was pretended, their deſertion from the frontiers of Ruſſia. The conſequence of this remiſſneſs however was, that the greateſt part of the Abaſſines deſerted their protectors and formed new ſettlements in the region beyond the river Kuban. Indeed the claims of the Kabardines on the ſubmiſſion of this people, are founded on mere uſurpation; for, under the ſacred pretext of friendſhip, the Princes of the Abaſſines were invited to an aſſembly, in order to enter into a more intimate connexion with the Kabardines; when theſe treacherous friends aſſaulted and murdered them, extirpated the remaining members of the family, while they compelled the nobles to ſubmit to their dominion, and ſettle in the vicinity of the Beſhtau.

The principal native places of the Abaſſines, beyond the Ruſſian frontiers, are the following:

1. Klitſh, on the rivulet Kalmurſa, which falls into the Kuban, on its right bank, near what is called the ſtone-bridge, or

or Taſh-Kupyr, in the Tartar language, or Miva-lamyſh in the Circaſſian.

2. Tramkt, on the rivulet Teberde, which empties itſelf into the Kuban, on its left bank, below the ſtone-bridge; as well as on the rivulet Sona, or Shona, which likewiſe falls into the Kuban on the ſame ſide, where we met with an old church belonging to the Chriſtian Greeks.

3. Loukt, on the rivulet Kardanek.

4. Aſlankt, on the rivulet Khaſaut, which, after uniting with the Kardanek on our right, falls into the Selentſhuk, or Indſhik.

5. Dudarukvat, ſituate on the banks of the little Selentſhuk.

6. Bibert, on the rivulet Maraukh, which joins the laſt-mentioned rivulet by its left bank.—The place called Ketſhega, ſituate above the right bank of the Kuban, properly belongs to Klitſh.

From the deſcription I have already given of the villages poſſeſſed by the tribe of Dſhentemir, on the banks of the Nartzan, the reader will be enabled to take a comparative view of the dwellings and villages of the Abaſſines and thoſe of the Circaſſians.

II. The great Abaſſa includes the following principal tribes.

1. The Beſhilbai, who, in the woody promontory, inhabit the banks of the rivulets Kepir and Tzikh, which, after uniting near the ſtratified mountains, fall into the great Selentſhuk by interſecting its left bank. They farther dwell in the black mountains *, near the ſource of the Urup, and partly alſo on the

* By the black mountains is uſually underſtood, that part of the lofty mountainous tract, which during ſummer is not covered with ſnow, and conſiſts chiefly of ſchiſtus.

banks of the great and little Tegen, which riſe among the lofty mountains, and fall into the Urup, or Uarp, on its left bank.

Theſe obſtinate and rebellious people pay little reſpect to their princes, and ſubmit to no authority; they could not even be ſubdued by the Ruſſian troops ſent againſt them. Their character and mode of living do not differ from thoſe of the other Abaſſines. Their villages are either in woody regions, or in defiles of difficult acceſs. Hence, as they live in woods and mountains, agriculture is much neglected; but they rear goats and ſheep, and alſo pay great attention to the cultivation of bees. From their country we obtain that famous, intoxicating, or what is uſually called maddening honey, which the bees collect from the bloſſoms of the *Rhododendron* and the *Azalea pontica*. The tribe of Beſhilbai lead a poorer life than any of their neighbours, and are great robbers.

2. The Barakai, another tribe of the Abaſſines, inhabit the country ſituate betwen the Pſinen and the little Laba, a ſhort diſtance above the point where the laſt-mentioned rivulet falls into the great Laba through its right bank. The Pſinen takes its ſource in the ſouthern angle of the horizontal mountains, as well as the Tegen, and joins the little Laba by interſecting its right bank. The Barakai occupy only a few villages, and in every reſpect reſemble the other Abaſſines.

3. The Tubi and Ubukh, who dwell in the mountains above the Shaukeſha, and ſpread towards the Weſt.

4. The Shapſikh inhabit the country bordering on the Black Sea, and prefer the woody mountains of the weſtern tract on the rivulets Antihir, Bugundur, Apin, Of, Tſhebik, Sataſa, and

Ships:

Ships: on the banks of the two firſt-mentioned are the villages called Abat, which belong to a nobleman of that name. Moſt of the Shapſikh live diſperſed in the fields, and are divided into ſeparate families: there are alſo ſome villages on the banks of the Sataſa and Tſhebik. The Abaſſines do not employ themſelves much in agriculture or the rearing of cattle, but live chiefly by depredations. They have no Princes among them, and he whoſe family is the moſt numerous, or who ſhews the greateſt bravery in piratical excurſions, is conſidered as their chief magiſtrate. Their lawleſs habits of plundering travellers are extremely haraſſing to the Turks, inaſmuch as they extend their incurſions to the vicinity of Anape.—The rivulets before mentioned form a large ſwamp below Sani, by which they are connected with the Attakum, near the place where this rivulet unites with an arm of the Kara-Kuban, that has received the name of Yerli.

5. The Natukaſh, or rather Natkhu-Kaitſhians, are another tribe of the Abaſſines, who inhabit the extremity of the black mountains, which, above Anape, partly border on the Black Sea, and a branch of which extends, in a northern direction, as far as the Kuban. The rivulets originating from theſe mountains, and inhabited by this people, are as follows:

1. The Attakum, which, after uniting with ſeveral brooks, takes its courſe through a long moraſs, in a ſimilar direction with the Kuban, and at length empties itſelf through the left bank into that river: it is inhabited by the family of Kuiſuk.

2. The Bakan, on the banks of which is ſituate the village Kalabat, inhabited by many ſcattered families. This rivulet

interſects the mountains, in a direction from South-Weſt to North-Eaſt, and forms a ſtrong defile, through which a ſtraight road leads to Anape: at the extremity of this defile it falls into the Attakum. In the upper parts of this narrow paſſage, near the road leading to Sutſhuk-Kale, reſides the family of Kharſek.

3. The Tzemes, which falls into the port of Sutſhuk-Kale: to the South of this rivulet, the Natukhaſſians poſſeſs fifteen others, bordering on the great Abaſſa.

In the mountains, extending in a northern courſe as far as the Kuban, they alſo poſſeſs the following rivulets, on a tract of country expanding to the diſtance of forty verſts along the laſt-mentioned river, conſequently in a direction from Weſt to Eaſt.

4. The Taſipſh, inhabited by the family of Shubak of the elder Naurus.

5. The Dſhup, which is occupied by the family of Khaſan Shukſhe.

6. The Pribebs.

7. The Khups, the banks of which, as well as thoſe of the preceding, are inhabited by the family of the elder Iſlam-Shukſhe.

8. The Neſil, or Nepil, on which are ſituate the villages of the elder Shupako Kaſho.

9. The Pſif: between this rivulet and the Neſil we obſerved a regular ſquare wall and ditch, which had four paſſages like a Roman camp. Towards the North of the fens formed by the Kuban, there are high artificial mounds, or hillocks, called Kurgani, which at a diſtance reſemble ſmall fortreſſes. Tradition reports, that in this place formerly ſtood the city of Shantgir,

Shantgir, the reſidence of a Temirgoyan Khan: hence the Temirgoyans and Circaſſians pretend to derive their origin. This fortification joins the rivulet Neſil in the Weſt, and the Pſif in the Eaſt; its diameter amounts to about three verſts.

10. The Kudaka, on the banks of which are the villages inhabited by the deſcendants of the elder Nemeri Primurſe, and Shupako Kaſho. In the vicinity of this river, where it flows from the mountains, are ſeveral ſprings producing the petroleum, or rock-oil on their ſurface.

The Natukhaſſians, the moſt powerful tribe of the Abaſſines, are on this ſide of the Caucaſus. They dwell in the glens of the mountains, which are uniformly, though thinly, covered with wood: their agriculture conſequently is of little importance; but it is rather ſurpriſing that notwithſtanding the beautiful paſturage, they do not pay more attention to the rearing of cattle. Continual feuds, and the natural propenſity to depredations are great obſtacles to a regular domeſtic economy among theſe people. They are at war with all other tribes, the Sanintzes excepted, who dwell on their frontiers. The Natukhaſſians are indifferently dreſſed, and lead a wretched life; they cultivate a ſmall quantity of rye, and occaſionally keep hogs, animals which are rarely met with among the other nations inhabiting this country.

The Kozaks of Nekraſov, who have deſerted from the Taman, and now live in the vicinity of Anape, on the Turkiſh territory, exerciſe the right of fiſhing in the river Kuban under the protection of the Natukhaſſians, and carry the fruits of their induſtry to the market of Anape.

All

All the Abaſſines, or Abſne *, diſplay a peculiar national character: their narrow faces, their laterally compreſſed heads, and their prominent noſes, are as characteriſtic as the dark brown hair which is almoſt general among them. They appear to be the original inhabitants of the north-weſtern part of the Caucaſus, and to have formerly occupied more extenſive countries, till they were driven into the mountains by the Circaſſians, who, by continual murder and extermination, have reduced them from a conſiderable to a ſmall number. It is obvious, from the dictionaries of all languages, that their foreign dialect, except a few Circaſſian words, has not the moſt diſtant analogy to any European or Aſiatic language; nay, it is certain that in the country beyond the mountains inhabited by other Abaſſinian tribes of the great Abaſſa, along the coaſt of the Black Sea, as far as Iſkuria, or the Dioſcurias of the ancients, this original tongue is, with a few modifications of the dialect, the prevailing language. Even in remote ages, they ſeem to have been a predatory people, as it is highly probable that the piracies complained of by STRABO as proceeding from theſe countries, have been committed by the Abaſſines.

III. The warlike nation of the Circaſſians inhabit principally the promontory of the Caucaſus, and extend themſelves to the adjacent beautiful plain, from which they have expelled the

* The national name of this people is *Abſne;* in the Tartar, Circaſſian and Ruſſian dialects, it is pronounced *Abaſa;* in the Georgian tongue *Abkhaſete.* The ſix tribes of *Altekeſek* are by the Circaſſians called Tabanta: to all the others they give the name of Kuſh-haſip, that is, people living beyond the mountains.—The countries of Mingrelia and Odiſhi are by the Abaſſines and Circaſſians termed *Dol,* while *Georgia* is called Gurgir.

ancient

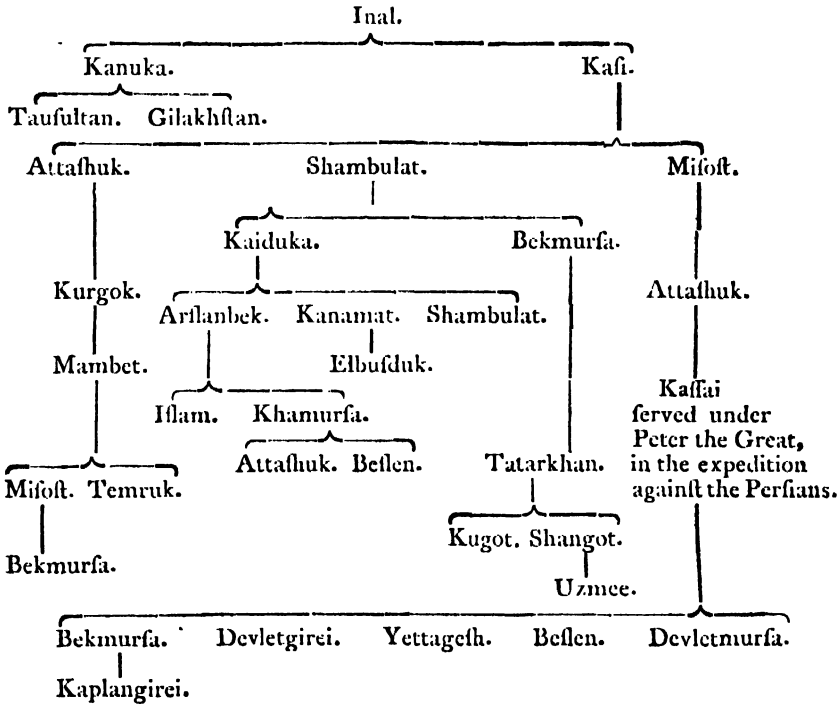
ancient inhabitants, and ſubjected the greater number to their dominion. They repreſent a ſpecies of knights, who obſerve a complete feudal ſyſtem among themſelves, as well as towards their ſubjects, not unlike that formerly exerciſed, though with ſtill greater ſeverity and cruelty, by the German knights in Pruſſia and Livonia. Conſidering the ſubject in this point of view, and admitting that the Princes and Nobility alone conſtitute the nation; that their ſubjects almoſt uniformly are the ſlaves of other nations ſubjugated by war, who, by adopting the language of their conquerors, have been treated with lenity, and that a free and gallant race of knights will not bear a foreign yoke without great reluctance, we ſhall then be enabled to judge with more candour and impartiality of their ariſtocratic conſtitution, as well as of their continual wars and revolts, not only againſt their former Khans of the Crimea, but alſo againſt their preſent maſters. It is a fortunate circumſtance, that their inteſtine feuds, and the divided power of this heroic people among a number of contending petty princes, render them leſs dangerous. Indeed, it were to be wiſhed that they could be converted into good ſubjects, and ſomewhat more habituated to an orderly life, without curbing their bravery and heroic ſpirit: if ſuch meaſures were adopted, we may confidently aſſert that their light cavalry would form the moſt determined and dreaded body of troops that ever appeared in a field of battle.

The branch of the nation moſt intereſting to the hiſtorical inquirer, is uſually called the great and little Kabarda; becauſe they inhabit the frontiers of the Caucaſus, and have, ſince the military cordon has been ſtationed on theſe mountains, alternately

nately maintained a friendly underſtanding and carried on bloody wars with Ruſſia: at preſent, however, they are ſubjected to the ſovereignty of that country, and have likewiſe, on the concluſion of the laſt peace, been acknowledged by the Ottoman Porte as Ruſſian vaſſals, in conſequence of the regulation of the frontiers, on the banks of the Kuban.

The Kabardines conſider themſelves as deſcendants of the Arabs; and it is not improbable that they are the remains of thoſe armies which were formerly ſent to the Caucaſus by the Caliphs: according to others they are the deſcendants of the Mamelukes. It is confirmed by general tradition, that they formerly inhabited the Crimea, which is obvious from the names ſtill exiſting in that Peninſula. The upper part of the river Belbik, in the Crimea, is to this day called Kabarda, and the whole of that beautiful country, ſituate between the Kabarda and the Kaſtſha, continues to be termed by the Tartars, Tſherkes-tus. The name of this people ſeems alſo to have been preſerved in their mountainous fort, called Tſherkes-kermen, the ruins of which are ſtill diſcoverable. At what period they extended their habitations along the banks of the Kuban, and in the country of the Beſhtau, cannot at preſent be eaſily determined. They call themſelves, like all the families of the Circaſſians, by the general name of Adigees: perhaps they are the *Cercetæ* of STRABO; or, if theſe ſhould not have been their Aborigines, they may probably be the Tſherkeſſates, who ſhall be mentioned in the ſequel. It deſerves to be remarked, that the families of the Circaſſian Princes conſidered Inal as their common anceſtor, and deſcribed him as a mighty Khan, whoſe former reſidence was the city of Shantgir, now in ruins between

between the rivulets Nepil and Pſif. From this Inal the Princes of the Great and Little Kabarda derive their genealogy in the following manner:



The genealogical hiſtory of theſe families is involved in much uncertainty. It is probable that they were firſt ſubject to the rulers of Georgia, together with a conſiderable part of the Caucaſus. After the ſeparation of the kingdom of Georgia, in the ſixteenth century, and particularly after the defection of the provinces of Mingrelia, Guriel, and Abaſa, they became ſubject to the Khan of the Crimea. In the ſame century they ſubmitted to the protection of the Tzar Ivan Vaſſilievitih, who,

about the year 1560, married Maria, a Circaſſian Princeſs, the daughter of Temruk. In the ſeventeenth century they again acknowledged the ſovereignty of the Crimea; and when they attempted to ſhake off this yoke, in the beginning of the eighteenth century, the Khan of the Crimea penetrated with his troops into the Kabarda of the Circaſſians, who fled to the mountains extending towards the ſource of the Bakſan, and fortified themſelves with ſtone mounds, erected in the defiles, which to this day have retained the name of the Crimean walls. In this ſituation they renewed their promiſes to pay tribute to the Khan, preſented him with many virgins, and ſent the Tartars a profuſion of ſtrong liquors, on the feſtival day appointed for the celebration of a peace. During the night, when their new friends were intoxicated, and in a profound ſleep, the Kabardines attacked the camp of the Crimeans, murdered the Khan, and diſperſed the whole army. To avoid the conſequences of ſuch nefarious treachery, they again ſolicited the protection of Ruſſia, which was not refuſed; but they have hitherto proved themſelves very unſafe and turbulent ſubjects. Major General DE FABRICIAN, their late Governor, has frequently puniſhed them, and at length limited for their reſidence the country ſituated between the left bank of the Malk and the Terek. But theſe refractory ſettlers have lately again extended themſelves to the banks of the Podkuma; while the moſt peaceful are thoſe who live within the appointed boundary. About ſixty years ago, theſe people profeſſed the Chriſtian religion, but ſince that time they have become indifferent and ignorant Mahometans.

Among

Among their princes, the family of Attaſhuk, inhabiting the banks of the Bakſan, is at preſent the moſt powerful, and at the ſame time the moſt turbulent, not only in their conduct towards the relatives of their tribe, but alſo towards Ruſſia. The family of Miſoſt is leſs potent, but has always been the moſt attached to the Ruſſian intereſt, and has conſequently ſuffered many injuries from the ill-treatment of the former. The tribe governed by the Dſhambulat family occupy the country ſituate on the foot of Mount Kaſhkatau, from which the river Tſherek derives its ſource; hence we find, in ſeveral maps and printed accounts, this tribe mentioned by the name of Kaſhkatovtzy.

Their Nobles, or Uſdens, are divided into the ancient equeſtrian nobility, and ſuch as hold this dignity from others, or Uſden of Uſden *. The moſt important families of the ancient nobility, are thoſe of Kudenet and Tambi. Their progenitor was Gnarduk; as Anſor was the common parent of the three noble families called Barukva, Saſarukva, and Elmurſa.

The boundaries of the Circaſſians of the Small Kabarda, extend from the right bank of the Terek to the upper parts of the left banks of the Sunſhe. Their Princes are deſcended from Kanuka, and divided into the families of Tauſultan and Gilakhſtan. The former reſides on the eaſtern part of Tatartup; but the villages of the latter, known by the names of Akhlov and Mudarov Kabak, are ſituate near the horizontal mountains over which the road leads to Georgia.

* A prince is in the Circaſſian dialect called Pſhi; in the Tartar language Bei, or By: a nobleman among the Circaſſians is called Uork; and among the Tartars, Uſden. A peaſant, or boor, is by the former termed Hokotl; by the latter, Tſhagar.

The Circaſſians in general, and particularly the Kabardines, dwell in villages which, partly on account of the increaſing uncleanlineſs, partly from the inſufficient ſecurity they afford, and other cauſes, are from time to time deſerted. On ſuch occaſions they demoliſh their habitations, carry off the timber, together with their houſehold furniture, and burn what they cannot remove. Their attention is next directed to the choice of another convenient ſituation for erecting a new village. If they happen to ſettle at ſome diſtance from water, their ingenuity enables them to form a canal which they conduct from the next rivulet, by means of ſmall banks; a practice in which they are as expert as the Tartars of the Crimea. Their houſes are built contiguous to each other, either in the form of circles or ſquares, ſo that the inner ſpace ſerves as a common large cattle yard, provided with only one gate, while it is altogether incloſed, and as it were defended by the circumjacent houſes. The reſidence of the Uſden ſtands uſually detached from theſe circles, and conſiſts of ſeveral apartments. Small ſolitary houſes, or rather ſquare rooms, about two fathoms wide, are here and there built for the accommodation of viſitors, with a chimney, a ſmall divan, and every other convenience. They likewiſe occaſionally erect, in the open fields, round huts of wicker-work, containing a pit which is uſed as a place of retreat. In the vicinity of the village are placed ſtacks of hay and corn, provided with a fence; they ſometimes manufacture large baſkets, which are fixed on the ground and ſecured with covers, wherein they preſerve their corn after it is threſhed.

The

The houſes of the Circaſſians are built in the form of oblong ſquares, from four to five fathoms in length, and ſeldom above nine feet broad: the walls are made of cloſe wicker-work, and on both ſides carefully plaſtered with clay. On the poſts ſupporting the walls, they place a flat roof of light rafters, which is covered with long graſs. The whole dwelling conſiſts of a large room appropriated to the miſtreſs of the houſe, and a ſmall apartment for the female ſlaves and girls. The principal room is provided with a door on the right-hand corner leading to the ſtreet, and another on the left corner leading to the inner yard. In the interior part of the houſe, againſt the front wall, there is a chimney made of plaſtered wicker-work, with a capacious fire-place and a ſhort flue. On that end of the room which leads to the yard, we obſerved a broad couch, or divan, with carved baluſters, excellent carpets, and bolſters: in a collateral direction was a window towards the ſtreet, which occaſionally ſerved as an entrance to the room. Above the ſofa, and on the whole wall around it, were ſuſpended on pegs and poles various implements of female economy, ſuch as articles of needle-work, apparel, and furs: on tranſverſe poles, below the roof, was placed the ſtore of Turkey wheat in full ears, which they roaſt in hot aſhes, and collect the grains, ſeparated from the ears by heat, for immediate uſe, and likewiſe to preſerve them for warlike expeditions; as theſe grains, together with a ſpecies of cheeſe made of millet, afford on ſuch occaſions their principal and portable food.—The huſband generally lives in a ſeparate apartment, and is not very fond of making his appearance before his wife, when ſhe receives the viſits of ſtrangers.

The

The Circaſſians are upon the whole a handſome race of people. The men, eſpecially among the higher claſſes, are moſtly of a tall ſtature, thin form, but Herculean ſtructure; they are very ſlender about the loins, have a ſmall foot, and uncommon ſtrength in the arms. They poſſeſs in general a truly Roman and martial appearance, yet there are ſtill ſome traces left, from which it is obvious that they are deſcended from mothers belonging to the tribe of the Nagais. The women are indeed not uniformly Circaſſian beauties, but are for the moſt part well formed, have a white ſkin, dark brown or black hair, and regular features: I have however met with a greater number of beauties among them, than in any other unpoliſhed nation.

In their villages and houſes the Circaſſians are extremely clean; and this domeſtic virtue they likewiſe diſplay in their food and dreſs. It would be ſuperfluous to add a particular deſcription of their uſual garments, as they may be diſtinctly ſeen in the well-executed eighteenth plate. This engraving repreſents a Circaſſian nobleman in his ordinary domeſtic dreſs, and the daughter of a Circaſſian Prince, in a ſimilar apparel. Their females dreſs in an uniform ſtyle, till they are delivered of the firſt child, after which they begin to cover the head with a white handkerchief, drawn cloſe over the forehead, and faſtened below the chin. It is a cuſtom perhaps not generally known, that their girls, between the tenth and twelfth year of their age, are provided with laced ſtays, or a broad girdle made of untanned leather: this ſingular coat of mail is among the common people tightly ſewed round the waiſt, but in the higher claſſes it is faſtened with ſilver hooks, ſo that they are obliged to wear

wear it till their wedding-night, when the bridegroom, with a ſharp-cutting dagger, unties this gordian knot, which ceremony is frequently attended with danger. Over the ſhift, the girls wear a laced jacket, becauſe the petticoat, which reaches to the ancles, is open along the whole front, and reſembles that of a man; but married women dreſs in wide breeches. Beſides the girdle of chaſtity above mentioned, there is another circumſtance which contributes to preſerve the elegant ſhape of the girls: they are ſparingly nouriſhed, their whole allowance conſiſting ſimply of a little milk and paſtry. According to the ideas of beauty prevailing among the Circaſſians, as well as the Turks, a woman ought to have a very narrow waiſt, and the abdomen ſhould protrude toward the lower extremities. When females are obliged to leave the houſe, they wear a ſpecies of wooden clogs, to preſerve their feet clean, and at the ſame time make uſe of mittens on their tender hands. Painting the face is conſidered here as an indication of the want of chaſtity; but girls are permitted to dye the nails of their fingers with the flowers of the *Balſamina*, which in their language is called *Kna*. Their head-dreſs conſiſts of a cap, nearly reſembling that worn by the men: under this ornament the hair is turned up in a thick queue, which is covered with linen.

It is a practice among the Circaſſians, to compreſs the waiſt from early infancy as much as poſſible, by means of ſtraps, on which the ſabre is ſuſpended: hence they are in general uncommonly thin between the loins and the breaſt. I have alſo uniformly remarked, that their feet are of an extraordinary ſmall ſize, becauſe they force them in the tighteſt manner within

within their morocco ſlippers, which give them the appearance of dancers. The male dreſs is light, neat, and becoming; and, in many reſpects, reſembles that of the Tartars, but is of a more elegant ſhape. The upper garment is regularly furniſhed with a ſmall embroidered pocket, on each ſide of the breaſt, for containing cartridges. On the head, which is ſhorn in the Poliſh faſhion, they wear an embroidered cap quilted with cotton, in the form of a melon, but occaſionally lower, and ornamented with various gold and ſilver laces, eſpecially among the wealthy: the whiſkers are likewiſe ſuffered to grow, as is common among the Poles. Above the lower dreſs, which is made of light ſtuff, perſons of diſtinction ſometimes wear a ſhort, rich waiſt-coat, as it were to ſupply the place of armour, either with or without a great-coat. The upper dreſs, conſiſting either of cloth or other ſtrong woven ſtuff, is ſomewhat ſhorter than the under garment, while the ſleeves are ſlit open, and frequently bordered with furs. The breeches are provided with knee-ſtraps, and the ſeams are bound with ſmall lace or embroidery, which the women very ſkilfully manufacture of gold and ſilver threads. When a Prince, or Uſden, pays a viſit in full dreſs, he arrays himſelf with all his accoutrements and coat of arms, above which he occaſionally has an additional jacket of mail, as is repreſented in the nineteenth plate. Theſe coats of mail are manufactured of poliſhed ſteel rings, and imported partly from Perſia, and partly from Kubeſha, to the nations inhabiting the Caucaſian mountains. The helmet, and the arm-plates, from the former of which a net of ringlets hangs down as far as the ſhoulders, are manufactured of poliſhed ſteel. In the girdle they

they uſually carry their dagger and piſtols, while the bow and quiver are tied by ſtraps round the hips. In common viſits, the coat of mail is worn below the upper dreſs, and on this occaſion they arm themſelves only with a ſabre, and cover the head with an ordinary cap.

The twentieth Plate repreſents a Circaſſian on horſeback, in his complete armour.—It is by no means uncommon to ſee Circaſſians of the lower claſs walking in the fields, dreſſed in their ſhaggy felt cloaks, called Burki, even in the warm days of ſummer. When they do not carry a ſabre with other arms, they provide themſelves with a ſtrong ſtaff, two arſhines long, on the top of which is fixed a large iron head, and the lower end is furniſhed with a ſharp iron pike, about eighteen inches long, which they are accuſtomed to throw expertly like a dart. Perſons of wealth and rank never leave the houſe without a ſabre; nor do they venture beyond the limits of the village, without being completely arrayed, and having their breaſt-pockets ſupplied with ball cartridges.

Their clergy and the learned let the whole beard grow; the former generally wear a deep red turban, and ſcarlet breeches ſomewhat longer than thoſe of the latter. Although the Circaſſians are ignorant and only nominal Mahometans, yet the few prieſts among them are highly reſpected. When they firſt ſubmitted to the Ruſſian ſceptre, a ſmall degree of zeal would have been ſufficient to convert them to Chriſtianity.

The Princes and Knights purſue no other buſineſs, or recreation, than war, pillage, and the amuſements of the chaſe; they live a lordly life, wander about, meet at drinking parties, and undertake military excurſions. The Uſdens, or

Knights, keep the lower claſſes of people in proper ſubordination, pay no duties to the Prince, but are obliged to render perſonal ſervices in war. Vaſſals, or boors, are conſidered as hereditary property, while they obſerve implicit obedience to the Princes and Nobles, inſomuch that their lives and poſſeſſions are entirely at the diſpoſal of the former: there is, however, no inſtance of their perſons having been ſold for bondage. Theſe vaſſals, and the ſlaves made by Princes and Uſdens during their wars, conſtitute the majority of the common people: they conjointly till the land with large ploughs, drawn by ſix or eight oxen; they attend to the paſturage of their flocks, carry the neceſſary timber and fuel from the foreſt, build houſes, get in the harveſt, and make hay, which during winter is foddered on the ſpot. Their wives and adult girls likewiſe aſſiſt at the harveſt, and are in general not ſo confined and reſerved in their conduct as thoſe among the Tartars of the Crimea. When, on ſuch occaſions, the Circaſſians remove to ſome diſtance from the villages, they immediately conſtruct huts, by joining poles which they cover with branches of trees and long graſs, ſo that they almoſt reſemble hay-ſtacks. Their Princes encamp in ſimilar huts, when, in their excurſions they are obliged to be ſtationary for a length of time. In their conſtant expeditions and equeſtrian rambles they erect ſmall huts, by means of four poles fixed perpendicularly, and connected by rafters which form the roof, and are covered with felt, ſo as to ſerve them inſtead of tents.

Among the boors, or peaſants, each male is obliged to work three days at hay-making, either for the Prince or the Nobleman, to cut wood in the foreſt for three days, to carry both the hay and wood to their habitations, and to deliver for every bullock

bullock a cart-load, or ſeven ſacks, of millet. A bridegroom of this claſs is compelled to give his lord of the manor two cows and two oxen for obtaining his conſent to marry. But the inhabitants of the mountain, ſuch as the Abbaſſines, Oſſetines, Dugores, Baſſianes, Balkares, Karatſhaies, and Karabulakes, whom the Circaſſian Princes have made tributary, give, in general, for each family, only one ſheep, or its value in felts, felt cloaks, cloth, copper veſſels, and the like. Every boor who poſſeſſes ſheep, whether his flock be large or ſmall, is obliged, during the encampment in ſummer, to contribute one ſheep to the Prince's houſehold, who is thus enabled to preſerve continual hoſpitality.

Although the Prince is not reſtrained by any poſitive laws, he conſiders it as his intereſt to gain the affection and fidelity of his ſubjects in war, by a liberal and benevolent conduct. He has the privilege of raiſing a vaſſal to the dignity of an Uſden, or of ennobling him when he is deſerving of that honour; but he has alſo the arbitrary power of depriving him of every thing he poſſeſſes. On important occaſions, he aſſembles the Nobles; and by theſe the reſolutions agreed upon are communicated to the people.

It is difficult to aſcertain the accurate amount of the population of the Circaſſians; but if it be admitted that the ſubjects of the line of Attaſhuka form about a third part of the horde or Kabarda, and that this line conſiſts of rather more than three thouſand boors and five hundred Uſdens, it follows that the Kabardines can bring into the field about ten thouſand privates and fifteen hundred Uſdens. If to this number we add the different tribes inhabiting the country beyond the Ku-

ban, of which an account ſhall be ſubſequently given, they will form a very conſiderable body of men, who, from their warlike and gallant diſpoſition, might become very dangerous to the neighbouring powers, if they were not divided among ſo many Princes that are almoſt continually embroiled in quarrels. According to their feudal conſtitution, every man who is capable of bearing arms, eſpecially a Nobleman, is bound in duty to follow the Prince into the field; as cowardice is among them puniſhed with extreme contempt.

The two oppoſite cuſtomary laws, namely, thoſe of hoſpitality and revenge, are ſacredly obſerved among the Circaſſian Knights, as well as among moſt other nations of the Caucaſus. The right of hoſpitality, which they term *Kunak*, is eſtabliſhed on certain principles; and every perſon ſubmitting to its protection is perfectly ſecure from all injuries. He who befriends a ſtranger, defends him, if occaſion require it, not only with his own blood and life, but alſo with that of his relatives; nor does he ſuffer him to depart without an equeſtrian eſcort, and delivers him over to his next confederates, under ſuch conditions that a murder or injury committed on the gueſt is avenged with equal ſeverity as the death of a relation by conſanguinity. A ſtranger who intruſts himſelf to the patronage of a woman, or is able to touch with his mouth the breaſt of a wife, is ſpared and protected as a relation of the blood, though he were the enemy, nay even the murderer of a ſimilar relative.

The oppoſite conduct, or bloody revenge, is practiſed with the moſt ſcrupulous adherence to cuſtom. The murder of a family relation muſt be avenged by the next heir, though he ſhould be an infant at the time when the deed was committed: every

every degree of vindictive malice is exercised sooner or later, whether publicly or in a clandestine manner, to take away the life of the murderer; lest the injured party should be considered as an outcast of society.—Nay, this desire of revenge is hereditary in the successors and the whole tribe: it remains as it were rooted with so much rancour, that the hostile Princes or Nobles of two different tribes, when they meet each other on the road, or accidentally in another place, are compelled to fight for their lives; unless they have given previous notice to each other, and bound themselves to pursue a different route. Among the Circassians the spirit of resentment is so great, that all the relations of the murderer are considered as guilty. This customary infatuation to avenge the blood of relatives, generates most of the feuds, and occasions great bloodshed among all the nations of the Caucasus; for, unless pardon be purchased, or obtained by intermarriage between the two families, the principle of revenge is propagated to all succeeding generations. The hatred which the mountainous nations evince against the Russians, in a great measure arises from the same source: if the thirst of vengeance is quenched by a price paid to the family of the deceased, this tribute is called Thlil-Uasa, or the price of blood: but neither Princes nor Usdens accept of such a compensation; as it is an established law among them, to demand blood for blood.

In their amusements, the youth of both sexes freely converse with each other, as the Circassian women in general are neither confined nor reserved. Yet in their courtships every attention is paid to the rank of the parties. No Usden dares to court the daughter of a prince; and, if such an amour should ever take place,

place, or the Princeſs be ſeduced by an Uſden, the preſumptuous lover, on the firſt occaſion, forfeits his life without mercy. If the ſon or daughter of a family enter into the ſtate of wedlock, they have no right to appear before their parents during the firſt twelvemonth, or till the birth of a child. During this period, the huſband continues ſecretly to viſit his young wife through the window of the room; but is never preſent when ſhe is viſited by ſtrangers: this affected politeneſs is carried to ſuch an extent, that the huſband is even diſpleaſed to hear others ſpeak of his wife and children, and conſiders it as an inſult if inquiries be made after the welfare of his ſpouſe. The father does not give his daughter her full marriage-portion, till after the birth of her firſt child; on this occaſion he pays her a viſit, takes off the cap ſhe wore when a virgin, and with his own hands covers her with a veil, which from that period becomes her conſtant head-dreſs.

The education of the children of the Circaſſian Princes is of ſuch a nature as to ſuppreſs, from the earlieſt infancy, every feeling peculiar to conſanguinity. Their ſons and daughters are, immediately after birth, intruſted to the care of a Nobleman, who is frequently none of the moſt wealthy; and the parents, eſpecially the father, has no deſire to ſee his ſon till he is an adult and capable of bearing arms; while no notice is taken of the girls, till after marriage. The tutor of the Prince is obliged to take upon him the whole charge of his education: he inſtructs the youth, during his adoleſcence, in all the ſchemes of robbery, which are held in great eſtimation among theſe equeſtrian Knights; he provides him with arms, as ſoon as he is ſtrong enough to wield them, and in ſuch array he is preſented

to

to his father. The grateful pupil rewards his foſter-father for the pains he has taken to qualify him in the predatory arts, by giving him the greateſt ſhare of the booty he is able to obtain.

The female children are nouriſhed in the moſt ſparing and wretched manner, that they may acquire a ſlender and elegant form; becauſe ſuch a ſtature is conſidered as an eſſential requiſite to a Circaſſian Princeſs. They are trained to all ornamental work in the domeſtic economy of females, eſpecially to embroidery, weaving of fringe, ſewing of dreſſes, as well as the plaiting of ſtraw mats and baſkets. The Nobleman intruſted with their education is alſo obliged to procure for his princely foſter-daughter a huſband of an equal rank, in default of which he is puniſhed with the loſs of his head.

The ſingular cuſtoms prevailing among the higher claſſes of the Circaſſians, who behave with ſuch reſerve towards their wives, live as it were ſeparate from them, and ſuffer their children to be educated by ſtrangers, all bear an obvious analogy to thoſe related by STRABO, in his ſecond book, reſpecting the community that ſubſiſted between the Gargarenſes and the Amazons. His account of the laſt-mentioned people cannot be applied to any nation of the Caucaſus, more aptly than to the Circaſſians; provided it could only be proved, that they were the original inhabitants of theſe mountains, or that they had in later times been mixed with the nations alluded to by Strabo. It is evident that the river Terek formerly flowed in a northerly direction, and emptied itſelf into that part of the Caſpian Sea, which was then connected with the Sea of Azof, and that its mouth muſt have been

been in the vicinity of Beſhtamak, about thoſe regions where the five rivers, Urukh, Tſherek, Tſhegem, Bakſan, and Malk, ſucceſſively join the Terek: as, farther, the laſt-mentioned river, in the higher parts of the country, receives the rivulet Mermedik, we may rationally conjecture that this is the *Mermodas*, or *Mermodalis* of Strabo, which ſeparated the ancient Amazons from the people called Geles, perhaps Galgai, as well as the Leges, or Leſges *. It might alſo be conjectured, with ſome degree of probability, that the Amazons, after having been conquered by the wandering Circaſſian Knights, had preſerved ſome of their original cuſtoms. The latter were unqueſtionably ſuch a horde of knight-errants, as had by the force of their arms primarily acquired a nation of vaſſals, who gradually adopted the language of their conquerors: an illuſtration, tending to confirm this opinion, occurs in the conqueſt of the Livonians by their German maſters, whoſe language was conſequently introduced into that country. Nay, it is probable, that the Circaſſian bears no affinity to any other language, and that it has originally been a ſpecies of gibberiſh; for it is reported that their Princes and Uſdens ſpeak a peculiar

* Strabon. Geogr. lib. XI. Amazones alii, atque inter hos Metrodorus Scepſius et Hypſicrates, ne ipſi quidem locorum ignari, Gargarenſibus confines eas habitaſſe aſſerunt in radicibus Caucaſiorum montium ſeptentrioni obverſorum, quæ Ceraunia dicuntur. — Duos autem veris menſes habere eas eximios, quibus adſcendant in montem vicinum: eas a Gargarenſibus dividentem. Hos quoque adſcendere tum, vetere quodam inſtituto, ibique una peractis ſacrificiis cum Amazonibus corpora eos miſcere prolis procreandæ cauſa: *idque in occulto*, et promiſcue quemvis cum quavis ut caſus obtulit. Poſtquam prægnantes fecerunt, domum eas dimittere. Has ſi femellam pariunt, ipſas enutrire: ſi marem, illis educandum mittere. — *Mermodas autem e montibus per Amazones ſe præcipitans et per Sirbeniam, ac deſerta in medio ſita, in Mæotidem effluit.*

dialect,

dialect, which is kept ſecret from the common people, and uſed chiefly in their predatory expeditions.

During our ſtay in the camp, on the banks of the Bakſan, I had an opportunity of ſeeing the national dance of the Circaſſians performed with much agility, by one of their young Princes. Several natives placed themſelves in a row, and beat the time, by clapping their hands, and inceſſantly repeating the ſyllables Ā-r̄i-r̄a-r̆i-r̆a, the two laſt of which were chanted a tone deeper, and continually in two diviſions of time. The dancer ſtood in an oppoſite direction, but his motions were confined to the ſpot; holding up his long garment behind with both hands, and frequently bending his body rather low, in order to watch the movements of his feet: with theſe he made every poſſible inflexion and figure, according to muſical time, much reſembling the national dance of the Scotch, while he ſkipped about in a triangle, with his toes almoſt perpendicular; a performance which muſt have been the more difficult, as the ſlippers he wore were not provided with ſtiff ſoles. The juvenile dancer, at the ſame time, ſhouted in a plaintive voice, as if he underwent ſevere flagellation.

The principal tombs of theſe people are erected of hewn ſtones, and form an oblong ſquare, either ſolid or hollow: the corners are uſually ornamented with head figures of wood. Theſe monuments are generally met with in the vicinity of villages, and in more or leſs conſpicuous ſituations. The Princes and Uſdens have much larger ſepulchral buildings of a ſexagonal, heptagonal, or octagonal form; and ſometimes even regular chapels, ſuch as are repreſented in the ſeventh Vignette:

they are built of ſtone hewn by maſons who come from the mountains for that purpoſe.

The ſepulchres of the Circaſſians generally reſemble thoſe of the Abaſſines. When the head of a family dies, the ſurviving widow is obliged to ſcratch her face and breaſt till the blood iſſues, as a token of the great affliction occaſioned by the loſs of her huſband. The men, on a ſimilar event, ſtrike their faces with a whip, in order to produce black ſpots, which they exhibit for a conſiderable time, as expreſſive of their grief.

With reſpect to the rural and domeſtic economy of the Circaſſians, it deſerves to be remarked, that they not only cultivate the ground, but likewiſe devote a conſiderable portion of their time to the rearing of cattle. Their principal ſpecies of grain is millet, of which they make cakes, haſty puddings, and prepare various kinds of paſtry, as well as their common beverage, by the natives called *Hantkups*, and by the Kozaks of the Terek, *Yantzokh*. Maize, or Turkey wheat, is alſo much cultivated, and uſed as a ſubſtitute for other food, when on their journeys and military expeditions. Several culinary vegetables, ſuch as carrots, turnips, the turnip-rooted cabbage, onions, gourds, and water-melons, are likewiſe planted in gardens. The women manufacture a very ſtrong thread of wild hemp, but they are not acquainted with the art of weaving linen.

The cattle of this people conſiſt chiefly of goats, ſheep, oxen, cows, and horſes. Their ſheep are generally an excellent race, of a white colour, have long tails, and produce a fine wool, which is carried to market, as well as a quantity of very good but narrow and undyed cloth, woven by the women: of ſuch cloth

are

are manufactured entire upper dreſſes for ſale in the market; while the black and coarſer ſpecies of wool is uſed for felt-cloaks.

Their horned cattle is of a ſmall ſize, and employed chiefly in drawing two-wheeled carts, here called Arbes: they walk with agility over eminences and hills, and in this reſpect reſemble the oxen bred on the mountains of the Crimea, which are not ſo heavy and ſlow as the large cattle of the Ukraine, but travel upon a quick trot.

It may be eaſily conjectured, that the moſt important object of attention among theſe predatory knights, is the rearing of fine horſes; a buſineſs which is purſued with a degree of zeal and attention, not inferior to that evinced by the Arabs. But the Circaſſians endeavour to breed not only beautiful, but at the ſame time ſtrong and durable animals, which are capable of undergoing hunger and fatigue, and alſo excel in ſwiftneſs; as the ſucceſs of their military enterpriſes depends on the ſuperior quality of their horſes. Almoſt every family of diſtinction, whether of Princes or Nobles, boaſts of poſſeſſing a peculiar race of horſes, which, when young, are burned on the buttock with a particular mark: on this occaſion they act with the moſt ſcrupulous adherence to cuſtom, ſo that a perſon who ſhould attempt to burn a character expreſſing noble deſcent on a filly of a common race, would for ſuch forgery forfeit his life. The moſt celebrated race of Circaſſian horſes has received the name of *Shalokh*, and is in the excluſive poſſeſſion of the Tauſultan family: this race is peculiarly valuable for its durability, ſtrength, and ſwiftneſs, more than for its ſuperior beauty; its diſtinguiſhing mark is a full horſe-ſhoe, without an arrow. On

the twenty-firſt plate here annexed, which contains the different characters of the moſt renowned races of Circaſſian and Abaſſinian horſes, I have prefixed a delineation of the ſhoe above alluded to, as well as the mark imprinted on the breed of the *Shalokh*.—The horſes of *Tramkt* and *Lof*, among the Abaſſines, and thoſe of *Miſaoſt* in the great Kabarda, are alſo highly valued, as well as the Perſian race termed *Tſhepalau*; beſides ſeveral others, the names and characters of which may be inſpected in the Plate before mentioned.

The Circaſſians alſo rear poultry of almoſt every ſpecies, ſuch as chickens, geeſe, ducks, and eſpecially Indian fowls, of a peculiar ſize and beauty. They beſtow conſiderable attention to the cultivation of bees, on account of the intoxicating quality of the mead, which is their favourite beverage. The bees are kept in hives placed on ſtocks, and carried along with them, as they remove and change their habitations. On the tenth Vignette, the reader will find a repreſentation of a Circaſſian, as well as an Ingulhian bee-hive. The latter fix the hives, with proper ſtocks, between the branches of low trees and buſhes, in order to ſecure the bees from vermin. The excellent honey which they produce, is partly made into mead after having been diluted with boiling water, partly uſed with a fermented liquor made of millet, and called *Buſa*, and partly conſumed at the table. Conſiderable quantities of this delicious production, together with the bees-wax, are likewiſe ſold on the frontiers of the Caucaſus, and the traffic is carried on with theſe articles, even as far as the city of Aſtrakhan.

We ſhall now take a view of the other Circaſſian tribes which inhabit the country beyond the river Kuban, and conſequently

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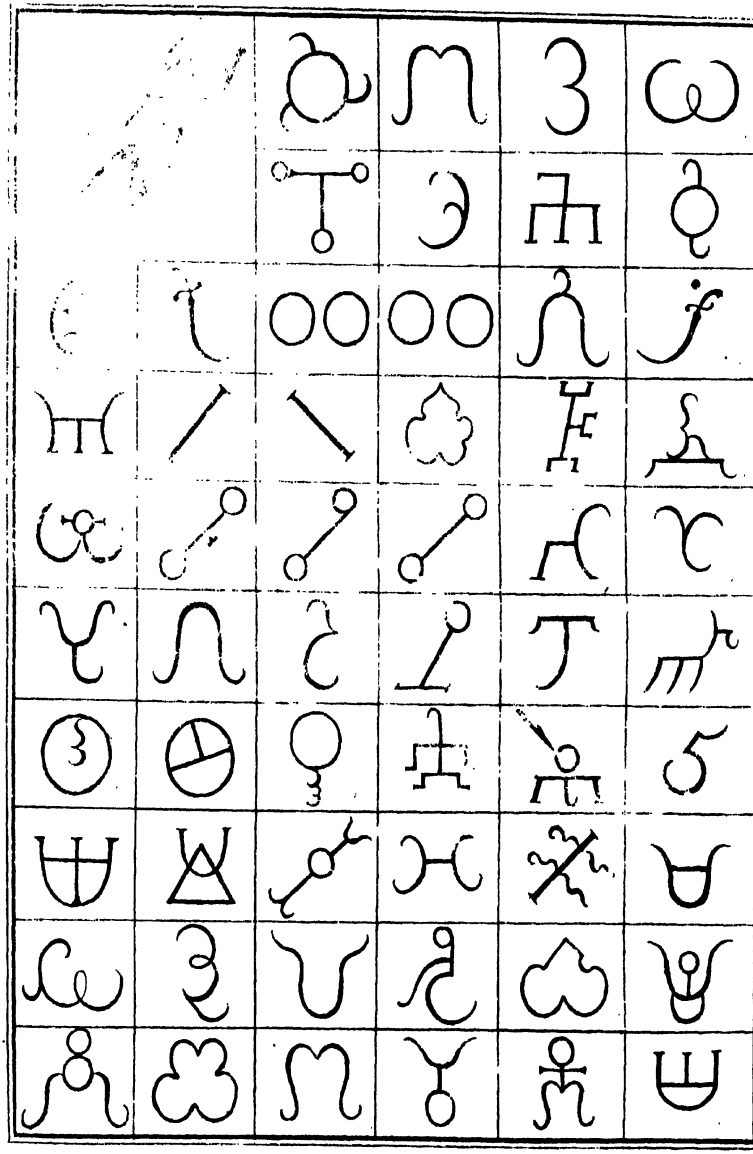

are not included within the boundaries, appointed at the concluſion of the laſt peace with the Ottoman Porte.

The next tribe is that of Beſlene: they dwell near the ſource of the Laba, where this river iſſues from the high mountains, and their habitations extend downwards as far as the Khots which falls into the Laba at its left bank, and thence up to the ſource of the Pſefir, which flows into the Yamanſſu, on its right bank. Here the country of the Beſlenians borders on that of the Mukhoſhians: they are the ſame tribe as the little Kabarda, and acknowledge Kanuka to be the common anceſtor of their Princes. In their manners and cuſtoms, they reſemble the Circaſſians, but are more cleanly and wealthy than the people of the mountains.

The country bordering on the foot of the woody and black mountains is inhabited by the Mukhoſhian tribe. Several ſmall rivulets iſſue from thoſe mountains, and flow through a fertile country into the Yamanſſu. In a direction from Eaſt to Weſt, the Mukhoſhians occupy the banks of the following rivulets.

1. The Shimblonakhe and Shograg, both of which, after uniting, fall into the Laba at its left bank. In this vicinity they principally rear cattle and cultivate bees.
2. The Pſefir, on the banks of which are ſituated the villages of Merberi and Kurgukau.
3. The Pſekhuſh, on which are the three villages called Nederbi, the property of a Nobleman of that name, under the ſovereignty of Prince Salatgirei Bagarſukof.—Theſe three rivulets, after uniting with each other at different places, fall into the Yamanſſu.

4. The

4. The Pharſe, or Yamanſſu Soſurakai, on the banks of which are likewiſe built three villages.
5. The Ponako, which flows into the Yamanſſu on its left bank; here are ſituated the villages called Dlebugai.
6. The Kalkh, which likewiſe unites with the Yamanſſu, and on its banks are the villages of Bierhabel and Deſhuka, belonging to the above-mentioned Prince of Salatgirei.
7. The Arim, which falls into the Bulanſſu on the right bank, and with the villages called Labugai, forms the weſtern frontier of the Mukhoſhians.

Theſe people are much devoted to agriculture, are wealthy in cattle, and live in fortified villages.

The next tribe is that of Temirgoi, the moſt populous and powerful of all the Circaſſian tribes. They border with the Mukhoſhians near the rivulet Arim, on the banks of which, below Labugai, is ſituated the village of Tſherikhai, belonging to theſe people. Its inhabitants are Egerekois, and ſubject to the Princes of Arſlangirei and Attaſhuk Eitek. The latter alſo poſſeſſes the Egerekois village of Rataſai, ſituate on the banks of the Bulanſſu, which falls into the Laba, as well as the villages of Minbulatai, Pſinaok and Gauerhabl, built on the banks of the Shaugvaſho, or Shaukeſha; this laſt-mentioned place is inhabited by wealthy Armenians. There are ſeveral other villages of the Temirgois on the banks of the Shaukeſha, a river ſimilar to the Laba, and iſſuing like it from the extremity of the ſnowy mountains. Immediately behind its ſource, the higheſt mountainous ridge extends more in a ſouth weſtern direction, and terminates towards the Black Sea; while the black mountains,

tains, covered with immenſe foreſts, and inhabited by Abaſſines, expand rather to the North-weſt, as far as the vicinity of Anape.

The river Shaukeſha has a high bank on its left ſide, but a low bank on the right: it is bordered with foreſts in every direction; and traverſes a country uncommonly favourable to agriculture, as well as to the rearing of cattle, till at length it falls into the Kuban, thirty verſts below the Laba.

Laſtly, the rivulet Pſega, or Pſhaba, forms the boundary of the Temirgois, and on its banks are ſituated the three villages called Khakemſi, belonging to a Nobleman of the name of Khakemis, and three other villages called Ademier Neſhukhai, all of which are under the dominion of Prince Eitek. This rivulet likewiſe iſſues from the ſnowy mountains, and runs into the Shaukeſha, at its left bank.

The whole tribe of the Temirgois occupies more than forty villages, and is able to bring into the field upwards of two thouſand men: the tribes of Beſlene, Mukhoſh, and Pſhedukh, are their allies, and when united they poſſeſs a power of at leaſt five thouſand effective men. The Temirgois are a wealthy people, and the moſt cleanly of all the Circaſſians. Their villages are uniformly fortified: thick poles are tranſverſely placed, in a reclining direction, the lower ſpaces between which are filled up, but the upper part is covered with thorn-buſhes; a contrivance which affords them an impenetrable fortification againſt their enemies, the Abaſſine tribes of Tubi and Ubikh, who reſide in the mountains, and with whom they are frequently at war.

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There is a family among the Temirgois, named Ademi, who inhabit ſeveral villages on the banks of the Pſega, and others on thoſe of the Pſiſhe.

The fourth of the principal tribes of the Circaſſians is that of the Pſhedukhs *. They inhabit the banks of the following rivers and rivulets.

1. The Pſiſhe, on which are ſituated the villages of Karagus, belonging to a Nobleman of that name, and the village Edepſukhai, the property of the Uſden Batuk.
2. The Matte, on which are the villages of Gubukai, and Netukhai, or Neſhukai, poſſeſſed by the Uſden Neſhukh.
3. The Shakups, near which are built the villages of Laktſhukai, Khatugui, and Mamrukai, all belonging to Prince Khamiſh: the three rivulets now mentioned ſucceſſively fall into the Kuban.
4. The Unabat, with the villages of Sugurgoi, ſo called after the proprietor, a Nobleman of that name.
5. The Tſhebi, near which are the villages of Shirgi and Tugurgoi, in the poſſeſſion of Prince Khamiſh.
6. The Sup, on the banks of which is ſituated the village of Yuem.

Among the Pſhedukhs there is a family of the name of Abaſekh: the people of this tribe purſue agriculture, and have likewiſe a few herds of cattle on the right bank of the Kuban,

* Perhaps theſe are the *Skeptukhi* of Strabo, who, according to his account, lived near the Boſphorus.

but

but are more addicted to robbery than their neighbours, with whom they are frequently involved in broils. Sultan Tſhobangirei, who is deſcended from the Khans of the Crimea, reſides among theſe people, and poſſeſſes a few ſubjects.—The mountains in this neighbourhood are only thirty verſts diſtant from the river Kuban, and are covered with conſiderable foreſts.

The fifth of the Circaſſian tribes, namely that of Hattukai, is at preſent under the dominion of the Ottoman Porte. Their habitations are eſtabliſhed in the following countries.

1. In the vicinity of the Kara-Kuban which the Circaſſians call Aſips; on the banks of which are ſituated the villages of Betzi, and lower down the village of Padiſe, belonging to a Nobleman of that name. The Kara-Kuban is a conſiderable river, and cannot be paſſed over without boats, eſpecially when it is ſwoln by the ſnow and rain-waters. It falls into the Kuban on its left bank; and after this junction the main river runs between low banks, and inundates, in ſpring, an extenſive valley from five to ſix verſts broad, on its left ſide, where it forms moraſſes extending to its very mouth.
2. On the rivulet Ubin, which, near Padiſe, falls into the Kara-Kuban: on its banks is ſituated the village Ptzukhakhai.
3. On the banks of the Gill, or Ill, where Prince Sheretuk poſſeſſes ſeveral villages called after his name, and where likewiſe are others called Hattukai.
4. Near the Aſips, or Aſhips, on the banks of which are the villages of Saubai, being the property of an Uſden of that name.

The Hattukais inhabit the country extending from the foot of the black mountains to the fens of the Kuban, the ſouthern ſide of which is ſurrounded by the river Yamanſſu. There likewiſe reſides among them a Sultan of the Crimean family, called Bakhti-girei, who has conſiderable influence over their national affairs, though he poſſeſſes only a few vaſſals.

Another ſmall branch of the Circaſſians deſerves to be mentioned: it is known by the name of Shani, or Sani, and conſiſts of only ſix villages; four of theſe are ſituated on the banks of the Attakum, and two below on the ſhore of a ſmall lake. They formerly occupied the right bank of the Kuban, above Kopyl, but fled, together with the inhabitants of Taman, to the left bank of that river, on the approach of the Ruſſian troops in the year 1778. They are governed by a Prince Miſoſt Melikirei Sana, are able to bring two hundred men well armed into the field, cultivate the ſoil, and likewiſe attend to the rearing of cattle, but are poorer than the other Circaſſian tribes, and reputed to be great robbers.

Laſtly, we ought not to paſs over in ſilence another, though very inſignificant Circaſſian tribe, called Shagaki, who inhabit the vicinity of Anape, on the banks of the river Bugur and its ſmall collateral branches. Their former habitations were on the ſpot where Anape now ſtands, but their number has been much reduced, partly by the attacks of the Natukhaſians, and partly by the ravages of the plague, ſo that a few only now remain. They are governed by Prince Mametgirei-Sane, who formerly carried on commerce, maintained his own ſhips in the Black Sea, and poſſeſſed conſiderable wealth. On account of his influence over the people living in the neighbourhood of Anape,

Anape, he is treated with reſpect by the Ottoman Porte. I was informed, that at the conqueſt of Anape a large white marble plate, with an elegant Greek inſcription, was found in his bath, in the village of Tſherakee, ſituated ſix verſts above the mouth of the Bugur. Although I had commiſſioned a Greek gentleman, who travelled from Taurida to Anape, to procure a copy of this inſcription, yet as he met with the plate in a mutilated ſtate, I could obtain only a part of the characters engraved on this monument, which conſiſted of a number of Greek names, without expreſſing the occaſion on which they were recorded.

Anape is a fortreſs which was built by the Turks twelve years ago, when Ruſſia took poſſeſſion of the Crimea, together with the iſle of Taman: it afforded protection to the fugitive inhabitants of Taman, and the wandering Nagais on the banks of the Kuban. The fort ſtands on a projecting part of the mountains, called Kyſilkaya, the baſe of which, towards the ſea-coaſt, terminates in a plain three verſts long. This point of the ſhore is, from North to South, interſected by a fortification which conſiſts of a wall and ditch, with three entire and two ſemi-baſtions, meaſuring ſix hundred and fifty fathoms in length. As the extent of the fortification on the ſea-ſide is no leſs than eight hundred and ſifty fathoms, the whole circumference of Anape conſequently is three Ruſſian verſts. Its ſouthern and weſtern ſide is fortified by Nature with calcareous perpendicular rocks, upwards of thirty fathoms high: cloſe to the ſhore, the ſea is ſeveral hundred fathoms deep, and preſents various clefts of lime-ſtone. Towards the North and North-weſt the ſhore declines, and amounts ſcarcely to half its former height: the acceſs by land is from the northern extremity,

towards which quarter the ſea is ſhallow, and contains ſeveral ſand-banks.

A little farther to the South of Anape is ſituated the ſmall fort Sutſhuk-Kale. It is an old caſtle, with four angular baſtions of about an hundred fathoms extent in each flank, and its walls are built of regular bricks. The harbour contiguous to its ſouthern ſide is five verſts long by three broad, and defended on that ſide by lofty and ſteep mountains. By land this fort is only thirty-five verſts diſtant from Anape, and is ſtill nearer by ſea. When that fortreſs was taken by General Gudovitſh, during the laſt war with the Turks, the Ruſſians alſo poſſeſſed themſelves of this poſt with no great difficulty. Both might have been of the firſt importance to Ruſſia, on account of their excellent ſituation to check the incurſions of the mountaineers; but they have been reſtored to the Porte.

The former inhabitants of the iſle of Taman, who fled thence on the conqueſt of the Crimea by the Ruſſians, were for the moſt part of Circaſſian origin. They migrated to the left bank of the Kuban, and have eſtabliſhed themſelves along the Liman, in villages which retain the name of Adale. The fortreſs of Anape is chiefly garriſoned by ſome of thoſe fugitives; becauſe many of them were killed when it was taken by the Ruſſians, others were diſperſed, and a few only have returned. Their principal employment is fiſhing, conſequently agriculture and gardening are but little attended to. They generally live under felt tents, or in huts miſerably conſtructed.

On the banks of the Shukups are ſituated the villages called Shukan, the property of Sultan Batirgirei, a deſcendant of the Crimean Khans. His ſon Selimgirei was educated in Ruſſia, and

and roſe to the rank of a Brigadier; but, notwithſtanding his promotion, he decamped from Georgiefsk, and reſides at preſent in this neighbourhood.

IV. The next people I propoſe to deſcribe are the Nagais, or the Tartars of the Kuban, who dwell among the Circaſſians, as well as in their vicinity, and generally lead a paſtoral life. They are the remainder of the Mongolian Tartars, formerly a powerful people, who, after the reign of Tſhingis-Khan, invaded and governed part of Aſia, as well as Europe; but have, during the laſt century, been ſo much reduced by the viciſſitudes of war, and their turbulent conduct, that they at preſent ſcarcely deſerve the name of a nation. When the laſt of their governments in Europe, namely that of Aſtrakhan, was conquered by Ruſſia, the Uluſſians, who formed a part of this empire, migrated to the deſert ſituated between the river Kuban and the Sea of Azof, where they for ſome time committed their uſual ravages. But their new rulers, the Khans of the Crimea, thought proper to remove them to the ſteppes in the vicinity of the rivers Dniepr, Bog, and Dnieſtr: during the laſt war, however, they again ſubmitted to the Ruſſian protection, and were ſuffered to return to their former paſtoral habitations, on the banks of the Kuban; becauſe they were diſſatisfied with the Crimean government. At length, in the year 1779, after they had ſufficiently evinced their predatory and turbulent diſpoſition towards the Kalmuks, as well as the Circaſſians and other inhabitants of the Lines of Caucaſus, ſome Ruſſian troops were ſent againſt them, under the command of General Suwarof,

Suwarof, who was empowered by Government to reconduct theſe refractory hordes to the ſteppe near the Dniepr. But, being little accuſtomed to ſubordination, numbers of them fled acroſs the river Kuban, and were, in the year 1788, after many ſtruggles, completely diſperſed, ſo that a conſiderable part of theſe fugitives became a prey to the mountainous nations. Nevertheleſs we meet but rarely with an Uluſſian there in a ſtate of bondage; and it is inexplicable what has been the fate of that great body of the Nagais, who, with their numerous flocks, traverſed the immenſe ſteppe from the Kuban to the vicinity of the rivers Don and Manytſh, and in an eaſtern direction as far as the Kalaus. Only a ſmall part of theſe people were conducted to the ſteppe between the Berda and Moloſhnye Vody, where they live in profound peace, and are comparatively wealthy: a ſtill ſmaller part is at preſent encamped in the vicinity of the rivers Kuma and Podkuma, and the mountain of Beſhtau; while another branch of the Nagais have croſſed the Kuban, and placed themſelves under the protection of the Turks. Many of theſe were made priſoners at the taking of Anape, tranſported to Taurida, and diſtributed among the Nobles of that country. The principal branches of the Nagais, excluſive of thoſe inhabiting the ſteppe near the Volga, and the families which remained at Aſtrakhan, are the following.

1. Naurus, a tribe which has for the moſt part remained beyond the Kuban. At preſent only thirty-ſix Murſen, or Nobles, and about four hundred of the lower order of people, live

live under the protection of Ruſſia, in the vicinity of the Beſhtau; though the whole tribe formerly amounted to upwards of two thouſand families.

2. Kaſſai, a part of theſe Uluſſians, together with the preceding, and the families attached to the Nobles of Iſlam and Akhlov, were removed to the banks of the Kuma, between the rivulets Tanglik and Pſemuka; but the greater number of them deſerted acroſs the Kuban. The whole of this tribe formerly conſiſted of eight thouſand families.

3. Kaſpolat. Of this tribe are left ſeventy-two Murſen and four thouſand three hundred of the common people, who live under the protection of Ruſſia, within the Lines of Caucaſus.

4. Kantſhak; of which tribe the Ruſſians have retained ſixty-five Nobles, and two thouſand five hundred men.

5. Mangut, or Mamſgut; a tribe governed by their Prince Murſakgirei: they were removed in the year 1790, together with that of Kaſſaiaul, to the banks of the Kuma, during the expedition entruſted to Lieutenant-General Bibikof. Of theſe people there ſtill remain fifty-ſeven Nobles and eighteen hundred ſubjects within the Lines of Caucaſus; they all are at preſent governed by the Commandant of the fortreſs of Conſtantinogorſk, in whoſe diſtrict they poſſeſs their paſture-grounds. The remainder of this tribe, who continue on the oppoſite bank of the Kuban, lead a wandering life between the Laba and the Urup.

6. Yediſſan.

7. Dſhamboiluk; and,

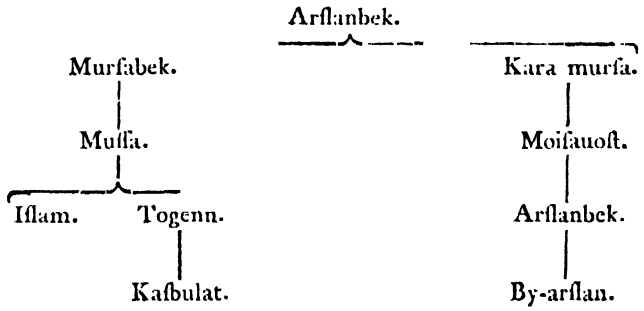
8. Yetiſhkul:

8. Yetiſhkul: theſe tribes have been tranſplaced to the neighbourhood of Moloſhnye Vody, and ſhall be ſubſequently ſpoken of.

To the tribe of Kaſſai alſo belong the people called Manſurians, after the name of their Prince: they live among the Abaſſines, on the banks of the great Selentſhuk and the Urup, or Uarp; in the vicinity of the place where both rivulets, after having traverſed a ſmall valley, flow through a chain of lofty horizontal mountains, of ſeveral verſts extent, at the foot of the black mountains. The former runs in an uniform direction from Eaſt to Weſt; is connected with the latter beyond the Malka towards the Eaſt, and with the black promontory beyond the Laba, towards the Weſt. A great part of theſe Nagais were removed to the banks of the Kuma, during the expedition commanded by General Tokelli in the year 1787, when they inhabited what is commonly called the Mount of Serpents, in the promontory of the Beſhtau, under their Prince Arſlanbek Manſur. In the ſummer of 1793, however, they left their former habitations and emigrated to the ſource of the Kalaus. They lead a wandering life, like all the tribe of the Nagais; yet do not neglect the cultivation of millet, though their flocks afford them the principal means of ſupport. Three brothers of the before-mentioned Prince Manſur have ſettled with their Uluſſians beyond the Kuban, and occupy the narrow defile of the mountains of Urup, where the rivulet Inal falls into that paſſage on the right; as well as the banks of the two rivulets Tegen, which flow into the Urup on its left ſide.

The

Among the tribe of Kaſſai was an hereditary family of Princes, who maintained a powerful influence among all the Uluſſians. The common parent of this family was Kaſbulat, from whoſe ſon, Arſlanbek, ſprung the two following lines of deſcendants.



Arſlanbek, the father of By-arſlan, was a famous depredator, known by the name of Sokur-Hadſhi, who committed great ravages on the ſteppe near Aſtrakhan, till he was conquered by General De Medem, and compelled to pay homage to Ruſſia: his family became extinct by the death of his ſon Kaſbulat: the laſt deſcendant of the other lineage was baptized Amanat, and is now commandant of Moſdok, by the name of Knaſs Dmitri Vaſſilievitſh Taganof.

All the Nagais ſtill diſcover by their features, that they are of Mongolian origin; nay, ſome of them have faces exactly reſembling thoſe born after the firſt intercourſe of the Mongolians, or Kalmuks, with Tartar or Ruſſian families: on the contrary, in the Tartars of the Crimea this national character, expreſſed in the features of the face, is almoſt extinguiſhed, on account of their frequent intermarriage.

The Nagais inhabiting the banks and ſteppes of the Kuban, are a very unſettled people, whoſe diſpoſition to robbery has not yet been changed; though they have of late years been much reduced by capital and well-deſerved puniſhments. Formerly the method of chaſtiſing them was extremely ſevere; as the culprits, without mercy, and on the ſpot, ſuffered the amputation of one hand and one leg. I was informed by the late Dr. LERCH, who had been an eye-witneſs to ſuch ſcenes, that the relations of mutilated criminals ſtopped the bleeding parts by applying hot milk, or fat, and carried ſuch ſufferers to their habitations.

V. There are likewiſe ſeveral ſeparated branches of the Nagais and Tartars ſcattered on the mountains of the Caucaſus: we ſhall principally mention the following, who dwell in the eaſtern part of thoſe mountains:

1. The Kumykes; and,
2. The Terekemes, who inhabit the country ſituated between Perſia and Georgia.
3. The Karatſhais, Karſhagas, Karatſherkes, or Karatſholes, a tribe of the Nagais, ſettled in the fertile valley bordering on the northern foot of the Elburus, around the ſources of the Kuban, at a diſtance of one hundred and forty verſts from Georgiefsk. Their whole number rather exceeds two hundred families, who pay tribute to ſome of the Circaſſian Princes, have fine herds of cattle, but beſtow little attention on agriculture. They generally live ſeparately in families, and

and border towards the Weſt on the Urup and the Beſhilbai; towards the South, on the Sona, or Svaneti; to the Eaſt, on the Kabardines; and to the North, on Altekeſek Abaſſa: their national affairs are adjuſted by a Chief, or an Elder, who receives a ſheep as a token of their ſubmiſſion.—The only road leading to the habitations of theſe people, is a very difficult and dangerous one for travellers on horſeback; it runs along the banks of the Kuban and the Bakſan. They breed a ſmall but ſtout and ſpirited race of mountain horſes, which are famous for their excellent qualities.

The Tſhegems and Balkares, ſometimes called Malkar es, are likewiſe denominated Baſſianes from their Chief, whoſe name was Baſſian. They aſſert that, according to tradition, their common anceſtors were a mixture of Bulgadares and ſome Greeks, who were afterwards joined by ſeveral Kumykes, Nagais, and Kalmuks. It is evident, from the number of old ruins ſtill diſcoverable, that the Tſhegems were formerly more numerous, when they profeſſed the Chriſtian religion. Indeed they are ſtill in the poſſeſſion of churches, among which, one ſituated near the banks of the Tſhegem, is particularly remarkable: it is built on a rock, in which they have excavated a ſerpentine path, provided on both ſides with iron baluſters. In this church are ſtill preſerved ſome fragments of books, a few leaves of which I procured by ſending a perſon on this dangerous expedition. One of the leaves contained part of the Goſpel in the old Greek dialect; the others were detached parts of books uſed in the Greek Liturgy.

The Tſhegems poſſeſs ſeveral holy wells, in the vicinity of which the cutting of wood is prohibited. Their herds of cattle are conſiderable; but inſtead of horſes they rear and employ a ſpecies of mules, which, among them, are called Kadra. Arable land is, on account of its ſcarcity, their greateſt national wealth, and they beſtow uncommon labour on its cultivation. Millet and oats are the principal grains ſown by theſe tribes: the latter is converted into beverage, and likewiſe ſerves as fodder for their mules. Their honey is of a delicious flavour; and their bees ſometimes alſo produce that intoxicating * ſpecies which is mentioned by Xenophon.

Theſe people inhabit a country near the ſource of the Argudan, but principally that of the Tſherek, on the high mountains. For the paſturage of their cattle in the lower valleys, they are obliged to pay rent to the Circaſſians, who, at the ſame time, conſider them as a tributary nation, and treat them as their vaſſals. It is however certain, that the Tſhegems are anxious to regain their liberty, and have applied for the protection of Ruſſia; an alliance which the Circaſſians, by all poſſible means endeavour to prevent; and for this reaſon permit none of the former to viſit the Lines of Caucaſus. In the year 1783, ſome Baſſian deputies, who were ſent with a view to ſolicit the protection of Ruſſia, eſcaped the vigilance of the Circaſſians, by taking a circuitous route, and availing themſelves of the good offices of Lieutenant-Colonel de Steder; but theſe

* The honey of Guri, or Guriel, is ſaid to be nearly as hard as ſugar, and of a peculiarly excellent taſte; on account of which it is ſold as a ſcarce article, even at the market of Conſtantinople.

unhappy

unhappy meſſengers were diſmiſſed with mere promiſes of future relief, which have never been fulfilled. As the Circaſſians place every obſtacle in the way of their commercial intercourſe, the Tſhegems are obliged to reſort to Radſha, ſituate on the oppoſite ſide of the mountains, where they frequently viſit the market of Onis, eſpecially for the purpoſe of purchaſing rock-ſalt.

The Tſhegems, who are ſometimes called Gigui, or Dſhig, inhabit the country contiguous to the ſource of the river Tſhegem, as far as its left branch, called the Shaudan, and amount in number to three hundred and ſixty-eight families, who live in the following eleven villages:

Ulu-Elt;	Kam;
Tabenindſhil;	Arſundak;
Berdebi;	Bulungu;
Mimala;	Sherlige;
Adſhe;	Uſtoſhirt.
Tſheget;	

Their country produces ferruginous earth, from which iron is ſmelted: they likewiſe poſſeſs lead-mines in the Kargaſhin, or mountain of lead, where this metal is viſible on the ſurface, and of which they make their bullets: they alſo manufacture ſalt-petre, in large quantities, a great part of which is converted into gun-powder for ſale.—The people of this tribe have, by ſome writers, alſo been called Zekhi; a name from the analogy of which, it has been conjectured that they originally were Bohemian fugitives.

The

The Balkares occupy the country near the ſource of the Argudan, but chiefly that of the Tſherek: their number, it is aſſerted, conſiſts of twelve hundred and thirty-ſix families, who live partly in detached places, but principally in the following nine villages:

Ulu-Malkhar *;	Khurdaira;
Shavarda;	Mokhaula;
Gobſarta;	Beſinga;
Adſhalga;	Kholam.
Iſkanta;	

According to the information given by the Kabardines, the laſt-mentioned village was infected with the plague, at the time when we viſited this neighbourhood. Under this malignant pretext, they guarded all the narrow defiles leading to the country of the Balkares, and threatened to ſhoot every perſon who ſhould attempt to croſs the Kabarda; in order to cut off all communication between the latter and the Ruſſian troops, who were then encamped on the banks of the Bakſan.

Theſe tribes were the original inhabitants of the countries now poſſeſſed by the Kabardines; but, though they have retired to the high mountains, with a view to evade the perſecutions of their oppreſſors, they have ſtill remained tributary to thoſe lawleſs knight-errants. The productions, which the Balkares bring to the markets of Radſha, conſiſt of felt in pieces, as well as in wrought cloaks and coarſe coats, the ſkins of the martin, fox, and other animals; in return for which, by way

* Great Malkhar, from which this tribe appears to have derived its name.

of

of barter, they receive rock-ſalt, coarſe cotton ſtuffs, and other commodities of inferior value. The principal part of their flocks conſiſts of goats and ſheep. They cultivate ſmall fields of barley and millet, but more rarely wheat. It is not a little curious that theſe untutored people are ſtill ambitious of being called Chriſtians, becauſe they eat the fleſh of hogs; but their chiefs, or elders, profeſs the Mahometan religion.

VI. The Oſſetes, or Ir, and, according to their own denomination, rones, whence their country is called Ironiſtan, are a very peculiar people, who have been compelled to retire to the interior parts of the high mountains. Their boundary towards the North is the Caucaſus, towards the Weſt the river Urup, to the Eaſt the Terek, to the South-weſt the river Rion, or Phaſis of the Ancients, and to the South-eaſt Aragva. The whole tribe is divided into diſtricts, or Kom; and villages, or Kou.—With reſpect to the tongue excluſively ſpoken by theſe people, it is remarkable, that it has many words in common with the Perſian, German, and Sclavonic languages, as well as expreſſions analogous to the dialect of theſe nations.—The Oſſetes are a barbarous, predatory, and miſerable race of men, who have always infeſted the public road leading to Georgia, through the mountains which they inhabit.

The two moſt populous and powerful diſtricts of the Oſſetes are thoſe of Dugor, and Durdugor: to theſe belong the following villages:

1. Kabilef, on the banks of the Leſken;
2. Karetſhau, near the rivulet Kharſin, which falls into the Urukh on its left bank;

3. Ba-

3. Baſhileva, on the left bank of the Urukh, at the foot of the horizontal mountains;
4. Tumak vaſha, on the lower banks of the Urukh;
5. Durdur, near the rivulet of a ſimilar name;
6. Two villages called Kubati, on the banks of the Uſdon, or white river.

All theſe villages are ſituated in the vicinity of the high mountains, and border on the great Kabarda; but the following are built in the interior parts of theſe mountains:

7. Sadeleſk, on the extremity of the defile bordering on the Urukh, near the road to Dugor;
8. Khenis;
9. Bigem;
10. Two villages called Nari;
11. Leſgor, on the left bank of the Urukh;
12. The villages named Donifars;
13. Kombult;
14. Farſikan, on the right bank of the Urukh; a caſtle ſituated on a rock;
15. Gagion;
16. Akſau, on the left bank of the Urukh;
17. Fariſgau;
18. Kalairag;
19. Khurigau;
20. Golak;
21. Geotai;
22. Kamat;
23. Okag;
24. Maſtinok;
25. Tadit;

25. Tadit;
26. Koſak;
27. Tzebogi;
28. Fiſnel;
29. Okas;
30. Tolis;
31. Galiat;
32. Vis;
33. Sturfas;
34. Dalardum;
35. Valakhoſar;
36. Kablek;
37. Bek-Kiga;
38. Novokau;
39. Akſargik;
40. Kuſou;
41. Stona, where a temple is erected for offering up ſacrifices.

The Tſherkeſſates are a tribe of the Dugores; they live near the extreme ſource of the Urukh, where this river precipitates itſelf from the ſnowy mountains, and near the mouth of the Arap, which flows from the South-eaſt into the former; they occupy the following places:

1. Two villages, called Kantomirovi.
2. Two ditto, ——— Karabugovi.
3. Sturkau — and other poſts poſſeſſed by families detached along the ſkirts of the mountains.

The Dugores have for a long time lived ſeparate from the other tribes of the Oſſetines: they are partly ſubject to the Badilettres, a race of Knights dwelling on the mountains, and partly independent. The inhabitants of Donifars, as well as thoſe of the villages ſituated in the neighbourhood, on the left bank of the Urukh, live under a republican form of Government, and do not maintain a friendly intercourſe with the other Dugores, but are eſteemed for their bravery. In ſome part of their territory is a remarkable cave, conſecrated to Saint Nicholas, who, as tradition ſays, appears here in the form of an eagle. The ſacrifices made to this tutelary Saint, conſiſt of the fleſh of animals, which is placed in the cave, and is no doubt a ſufficient inducement for the eagles to viſit this place. The Dugores poſſeſs a temple devoted to their ſacrifices, which are made on important occaſions, when they kill their cattle, conſume the fleſh, but carefully depoſit the bones in the temple.—Among the Tſherkeſſates we alſo found ſacred groves, in which every family has its appropriate place for erecting huts, under the ſhades of trees or buſhes. Theſe people celebrate an annual feaſt, which is continued for eight days, and bears great reſemblance to the Jewiſh paſſover. During this religious feſtival every paſſenger is ſtopped, and obliged to join them in the celebration of the feaſt, when all the families ſtrive to emulate each other in evincing their hoſpitality.

With reſpect to the other tribes of the Oſſetines, I could not gain any information additional to that already publiſhed by GULDENSTADT. In external appearance they exactly reſemble the peaſants of Northern Ruſſia; have, in general, like them either

either brown or light hair, occaſionally alſo red beards, and appear to be very ancient inhabitants of the mountains.

I was informed, that in the vicinity of theſe ſnowy mountains, where the *chamois*, or wild goats, depaſture, a large bird is frequently met with, apparently a ſpecies of pheaſant, or partridge, and which the Oſſetines call Sym; but the Circaſſians and Tartars, Dſhumaruk: the cock of theſe birds is named Beſhbarmak, becauſe he is provided with five talons on each foot. According to report, his plumage is beautifully variegated: he whiſtles at the ſight of man on the ſolitary mountains, and thus cautions the wild goats, or Turi, againſt the perſecutions of the huntſmen. Although I made great promiſes to the Circaſſians and Oſſetines, I could not procure one of theſe birds. I have however related, for the information of future travellers, all the particulars I could obtain relative to this winged animal; it alſo viſits that ſide of the mountains, in the vicinity of which we travelled, eſpecially ſuch places as are deſtitute of wood, and where we firſt diſcovered the *Rhododendron Caucaſicum*. Of this plant I received a variety of ſpecimens, by the party diſpatched for the purpoſe of taking the bird; but that non-deſcript eluded their vigilance.

VII. There is a tribe of people differing entirely from all other inhabitants of the Caucaſus, in language as well as in ſtature, and the features of the countenance: their national name is Lamur, ſignifying inhabitants of mountains; by others they are called Galgai, or Inguſhians. Their neareſt relations, both by conſanguinity and language, are the Tſhetſhentzes,

who by them are called Natſhkha. I had an opportunity of ſeeing two deputies from this nation, in the Ruſſian camp near the Bakſan. On account of the characteriſtic national features of their face, their ſtature, and armour, all which my deſigner has expreſſed in the moſt accurate manner, I have given a repreſentation of theſe ſemi-barbarians, in the twenty-ſecond plate. Their manner of pronouncing appeared to us, as if their mouths were full of ſtones. We were informed that they are an honeſt and brave ſet of people, maintain their independence, and are ſubject only to their elders, or prieſts, by whom their religious ſacrifices are performed. They are almoſt the only nation inhabiting the Caucaſus, among whom the ſhield has been preſerved, as a part of their accoutrements. Theſe bucklers are made of wood, covered with leather, and bound with iron hoops of an oval form. The ſhort knotty pike which forms part of their armour, ſerves not only as a weapon of defence, but is likewiſe uſed for ſupporting the gun between its forked branches, by fixing the pointed end in the ground, which enables the ſharp-ſhooter to take a more accurate aim. The Inguſhians are excellent markſmen, but beſtow little attention either to agriculture or the rearing of cattle, and are conſequently in a ſtate of poverty. They live in the vicinity of the ſources of the rivers Kumbelee and Sunſha, and extend their habitations along the high mountains to the eaſtern bank of the Terek, where they border on the Oſſetines. The Karabulakes are deſcended from the ſame tribe, and likewiſe border on the Inguſhians towards the Weſt, and on the Tſhetſhentzes towards the Eaſt. The three tribes ſpeak nearly the ſame language, though it has not the leaſt analogy to any other dialect,

dialect, except that ſpoken in Tuſhet, for the firſt knowledge of which we are indebted to the Univerſal Dictionary of the late Empreſs CATHARINE II. The judicious GULDENSTADT has thought proper to claſs this tribe of people under the common denomination of Mitzdſhegis, or Kiſti, who appear to be the remainder of the true Alanians. In a maritime journal, Periplus, extracted chiefly from Arrian and Skymnus Ghius, the Tauridan city of Theodoſia is called by the compound Alanio-Tauridan name of Ardauda, which, in the Alanian dialect, ſignifies ſeven gods. This name ſtill bears the ſame ſignification in the modern dialect of the Kiſti, among whom Uar expreſſes the number ſeven, and Dada denotes a father, or God: and it is remarkable that the term *Thaut*, among the worſhippers of the fire, in the vicinity of Baku *, to this day ſignifies the name of God. I could not diſcover that in any other language ſpoken by the nations of the Caucaſus, the numerical word ſeven has a ſound analogous to that of *Ar*, or *Uar*.

There is a very ſtrong ſaline ſpring iſſuing from a mount poſſeſſed by the Inguſhians: its water is, according to report, ſo much impregnated with ſalt, that two buckets of it produce one of that article: after forming a ſmall rivulet, this ſpring falls into the Forthan †.

I was aſſured by a Roman Catholic miſſionary, that theſe people poſſeſs an old church, which is built according to a model taken from the ſepulchre of Jeſus Chriſt. Although it

* See Reineg's Deſcription of the Caucaſus, in German, part i. page 157.

† The natives of that country pronounce the "*th*," in Forthan, ſimilar to the Engliſh, and likewiſe to the Θ of the Greeks.

bears

bears evident marks of antiquity, it is nevertheleſs of ſo firm a conſtruction, that it but ſeldom requires to be repaired. In the front of this church, there is ſtill viſible a Gothic inſcription: and the ſame characters are alſo made uſe of in the books written with gold, blue and black letters, in the Latin language, which are here preſerved as ſacred relics. The building itſelf is continually kept in proper repair by the Inguſhians, who, at preſent, rather incline to profeſs the Mahometan faith. One of the moſt remarkable circumſtances relative to the hiſtory of this church is, that it has eſtabliſhed revenues, which conſiſt in heads of cattle; nay, it is held in ſuch profound veneration, that nobody ventures to enter it, and the natives, when viewing it at a diſtance, proſtrate themſelves in adoration. Their moſt ſacred oaths are made in the name of this church, and woe to him who ſhould attempt to commit perjury! In diſeaſes, as well as on other unfortunate occaſions, the church is their principal aſylum; and there are above thirty ſmall habitations erected in its vicinity, perhaps from the veſtiges of a former cloiſter.

The Inguſhians have repeatedly ſolicited the protection of Ruſſia, and are, even now, extremely anxious to obtain tracts of land in the plain country; a grant which would render theſe induſtrious farmers very uſeful and loyal ſubjects.

Although the Tſhetſhentzes ſpeak the ſame language as the Inguſhians, their national character is totally different from that of the latter. They are juſtly conſidered as the moſt turbulent, hoſtile, and predatory inhabitants of the mountains, ſo that they are without exception the worſt of neighbours on the Lines of Caucaſus. There elapſes no year in the annals of their

their hiſtory, in which they do not carry off man and beaſt, or commit other exceſſes, and continually infeſt the road leading from Kiſlar to Moſdok. It is therefore matter of regret, that they cannot be eaſily ſeized and brought to condign puniſhment for their lawleſs conduct, as they inhabit the woody and abrupt mountains, which are almoſt inacceſſible to ſtrangers. Theſe are the ſame people who, during the laſt war, afforded the moſt active ſupport to Sheikh-Manſur, the pretended new prophet; and ſince that period the Tſhetſhentzes have not been reduced to obedience.

VIII. Another chain of mountains, as lofty as the former, is inhabited by a nation called Suanians, but by the Georgians termed, Svanetti, by the Kabardines, Sona, and by the Baſianes, Ebſe.—Suani is the peculiar name of the natives, and ſignifies highlanders. Their habitations on the ſouthern baſis of the Elburus extend to the Weſt, as far as the ſource of the Engur; towards the South, they border on the principality of Dadian, and the Imeretian province of Odiſhi; towards the Eaſt on the ſource of the Tzenis-tzkale, or horſe-river, which indubitably is the *Hippus* of the Ancients. They live diſperſed in particular families, are great depredators, but nevertheleſs call themſelves Chriſtians. Agriculture and the rearing of cattle are not altogether neglected among them: their principal intercourſe is that with the provinces of Imeretia and Mingrelia. The population of theſe depredators is not exactly known: it appears, however, to be but inconſiderable, becauſe Tzar Solomon has repeatedly reduced them to ſubmiſſion, with an army conſiſting of not more than two thouſand men.

With

With reſpect to the other mountainous nations, eſpecially the Leſgiſian tribes, I ſhould not attempt to give any account, after the circumſtantial deſcription furniſhed by GULDENSTADT and REINEGS, had I not obtained ſome information relative to the Kubeſhanians. The former of theſe writers did not ſucceed in acquiring any knowledge of their language, and was conſequently unable to ſupply us with a vocabulary. It has been conjectured by ſome, that the inhabitants of the city of Kubeſha were originally Franconians, while others ſuppoſed them to be of Genoeſe, or Venetian origin; nay, it was reported among the inhabitants of the Lines, that a native of Kubeſha, on his pilgrimage to Mecca, had lately met by chance ſome Venetian ſailors at Conſtantinople, with whom he could converſe in intelligible terms. As I had an opportunity of ſpeaking to a native of Kubeſha, I ſhall communicate to the reader a few phraſes I learnt in conſequence of my queſtions, and from which it will appear, that their language is analogous to that of Akuſha, and partly alſo to the dialect of Kaſikumuk.

I ſalute you { in the Kubeſhanian tongue - }	Senſartſha!
Whither doſt thou go? - -	Tſhinar Kuli?
What news is there? - -	Sekhabar Deba?
Bread - - -	Katz.
Salt - - -	Tze.
Water - - -	Shin.
The Sun - - -	Bargey.
Clouds - - -	Girik.
A Woman - - -	Kunud.

A Girl

A Girl - - -	Rurſi.
A Boy - - -	Darga.
A Dreſs, or Coat - -	Soktan.
Come hither! - - -	Iſho vanna!
Go thither! - - -	In tavakan!
The Head - - -	Bek.
The Eyes - - -	Khuli.
The Eyebrows - - -	Net.
The Noſe - - -	Kanki.
The Mouth - - -	Mugli.
The Teeth - - -	Suda.
The Beard - - -	Mutzur.
The Neck - - -	Kaf.
The Shirt - - -	Kheva.
The Ears - - -	Lege.
The Peliſſe - - -	Tintana.
The Cap - - -	Kapa.
Boots - - -	Tſhekma.
Stockings - - -	Karti.
The Girdle - - -	Iri.
Father - - -	Dudeſh.
Mother - - -	Nem.
Siſter - - -	Doſi.
Brother - - -	Oſo.
A Horſe - - -	Artſh.
The Saddle - - -	Im Kapta.
To kiſs - - -	Mindar.
Female organs of generation -	Kutma.
The Penis - - -	Duna.
The Fundament - -	Khoa, Khai

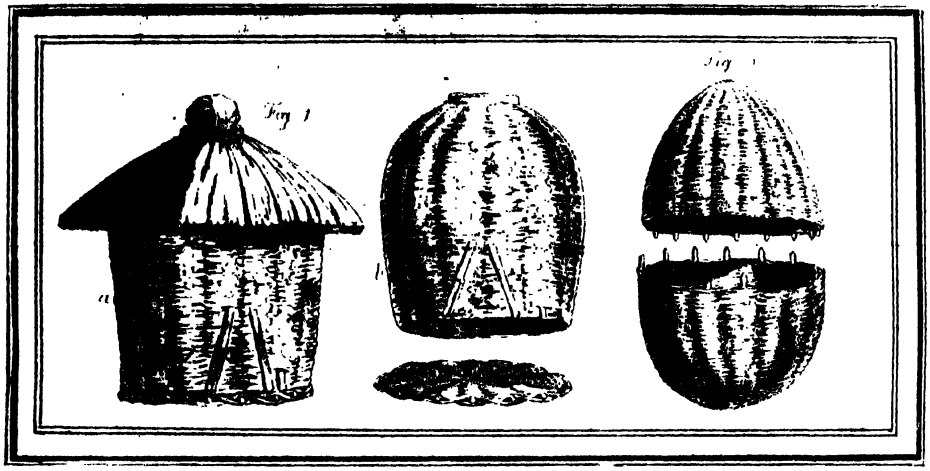
Among the modern inhabitants of the environs of the Caucaſus, ſhould alſo be included, not only the brave Ruſſian Kozaks of Grebenſki and Semeinofski, who formerly ſettled in this vicinity, but likewiſe the Kozaks of the Volga or Dubofski, who, ſince the year 1771, emigrated to the banks of the Terek; and laſtly, the Kozaks of Tſhernomorſki, who have lately peopled the right bank of the river Kuban: by this new population the frontier line on that river, which before was in a manner interrupted, has been rendered complete, ſince the late treaty of peace with the Ottoman Porte, ſo that it now extends from Uſtlabinſkoi Krepoſt, or the laſt fort of what is properly called the Lines of Caucaſus, as far as Taman. They are the deſcendants of thoſe fugitive Kozaks of Saporogi, who, ſubſequent to the ſuppreſſion of the celebrated Setſh, on the Dniepr, and immediately after the peace of Kutſhuk-Kainardſhi, went over to the Turks, but were, during the laſt war, again graciouſly received by Ruſſia. After the concluſion of that war, they obtained the grant of the country ſituated between the rivers Kuban and Yei, as far as the ſea-coaſt, together with the iſle of Taman: Government alſo conferred on them new privileges, with permiſſion to increaſe their number to fifteen thouſand men, and adapted their conſtitution to the ſame regulations as the Kozaks of the Don, ſo that they now form a frontier militia, live in a married ſtate, and poſſeſs thoſe beautiful countries and fiſheries on the laſt-mentioned rivers, as well as the ſea-coaſt; while they ſerve as a cordon to check the incurſions of the Abaſſines and Circaſſians. In their civil and military conſtitution, they are ſubject to the command of the Lieutenant-Governor of New Ruſſia and Taurida.

The

The principal place inhabited by the Kozaks of Tſhernomorſki is Ekaterinodar, about ſixty verſts below Uſtlabinſkoi Krepoſt: above this place they poſſeſs the Slobodes, or villages of Onofrievka, Conſtantinovka, Stoyanovka, Bolſhaya, Malaya, Kirgiſovka and Khadſhukan. Between the firſt and ſecond of theſe villages is built the redoubt of Petrofskoi; and between the third and fifth, that of Krivoe. On travelling down the river from Ekaterinodar, we obſerved two redoubts called Slavanſkoi, and alſo a nameleſs one; we then came to the Slobodes of Vidnaya, Tſhernoleſkaya, and Sakharovka: theſe Kozaks alſo poſſeſs and garriſon, near the ſea-coaſt, the places named Temruk, Taman, Atſhuef, and Yeiſkoi gorodok, the laſt of which has important fiſheries; beſides many lonely habitations and ſcattered farms, with excellent paſturage for rearing cattle, which the country produces in abundance.

As the river Kuban, in the laſt treaty with the Ottoman Porte, was fixed for the boundary on the eaſtern ſhore of the Black Sea, there have been no regulations made ſince that period, with reſpect to the inhabitants near the ſource of that river, and the chain of mountains extending to the Eaſt and South-eaſt of the Elburus. Ruſſia, therefore, retains her privileges relative to the nations inhabiting the eaſtern ſide of the Elburus, as far as the Caſpian Sea, and from the Lines of Caucaſus as far as the Kur and the promontory of Ararat. Many of theſe tribes have, at different times, ſubmitted to the protection of Ruſſia, though they have by no means become good and truſty ſubjects; nor has the Ruſſian Government ſucceeded in impoſing the leaſt burthen or taxes, either on the Circaſſians and Abaſſines, or on the Nagais recently ſettled within

the boundaries of the Kuban. The Abaſſines, however, have lately been prevailed upon to pay one ruble for every cart-load of ſalt, which they fetch from the lakes within the boundary, and of which their herds conſume conſiderable quantities; while, on the contrary, the tribes living beyond the Lines are ſtill permitted to export this commodity, without paying any duty to the Government.



During my ſtay at Aſtrakhan, which I twice viſited, I obtained information from intelligent perſons, reſpecting the events and changes that had occurred in Perſia ſince the death of Kerim Khan. As great commotions had for ſome time prevailed in that country, I was anxious to procure a detail of thoſe tranſactions, eſpecially as Murtaſa-Kuli-Khan, a brother of the laſt Perſian conqueror, Aga-Mamet-Khan, had, in the ſpring of the preſent year, 1793, accepted the protection of Ruſſia, and a penſion. The reader will perhaps be gratified with a particular narrative of theſe affairs, which may ſerve as a ſequel to the more ancient hiſtorical account publiſhed by the younger GMELIN, in his Travels through Ruſſia.

Kerim-Khan-Seit, who had the good fortune to govern Perſia during a long interval, under the title of Vakil, that is, Governor

or

or Regent, died on the 11th of February 1779, in the eighty-third year of his age, after having ruled over the Perſian Empire upwards of ſixteen years. He left two brothers, Saki-Khan, and Sadûk-Khan; three ſons, Abdul-Fettaa-Khan, Fett-Ali-Khan, and Mamet-Ali-Khan, and an only daughter. His ſons, together with Saki-Khan, were at that period in Shiras, the ordinary reſidence of Kerim-Khan; and Saduk-Khan was at Baſſora, which had been recently conquered by the Turks.

The death of Kerim-Khan was an event ſo important to all Perſia, that a report of it alone, when propagated, had formerly occaſioned the defection of whole provinces. To prevent commotions, and prove to the people that he was ſtill alive, in the latter days of his extreme debility, when he could no longer walk from the Harem, he ordered himſelf to be carried to the Divan. At length, when he expired, his death, from political motives, was kept ſecret, till proper meaſures were taken for the preſervation of tranquillity. The gates of the city were ſhut, and the hoſtages from the provinces placed under a ſtrict guard, ſo that his deceaſe was not made known for ten days. Meanwhile his remains were privately interred in the Shah-Babi, or garden of the Shah, as he had expreſsly directed.

Although Saki-Khan immediately cauſed the young Abdul-Fettaa-Khan to be proclaimed ſupreme Governor, yet this Prince being young and weak, his uncle retained all the power in his own hands; ordered the other ſons of Kerim-Khan to be impriſoned; and put to death ſeveral perſons of rank, together with ſome truſty partizans of the late Regent. His ſanguinary temper, and the cruelty of his behaviour, during the Regency of his brother, were univerſally known. And as all the Khans

of

of the provinces clearly perceived, that he intended to make himſelf abſolute ruler, under the ſanction of his nephew's name, they unanimouſly, even Saduk-Khan not excepted, who remained as Governor at Baſſora, made all poſſible preparations to renounce their fealty.

The firſt revolt began in the neighbourhood of Iſpahan, about five months after the death of Kerim-Khan. Saki-Khan, who marched at the head of a numerous army from Shiras, indeed brought with him his nephew, Abdul-Fettaa-Khan, but in chains. He left the other ſons of Kerim-Khan at Shiras, under the eye of his ſon Abkar-Khan. The firſt attempt he made with his army, was againſt the ſmall town of Pokhimkala, which had revolted with ſeveral others. This town is three days journey from Iſpahan. He captured it, and put all the inhabitants to the ſword, not ſparing even the innocent children. This, and other cruelties, ſpread terror and indignation throughout his army; nay, the animoſity of the inferior officers became ſo great, that, together with Alibek-Sand, they conſpired to aſſaſſinate their commander. The conſpirators diſcloſed their plan to the injured Abdul-Fettaa-Khan, who would not act in concert with them, but left the whole enterprize to the projectors. They nevertheleſs perſiſted in their determination, and, during the night, overpowered and killed Saki-Khan at his head quarters. Thus the chains were removed from Abdul-Fettaa-Khan, who next morning, with martial muſic, was proclaimed the lawful Sovereign of Perſia *.

* After the abolition of the title of *Shah*, it was cuſtomary in all the provinces of Perſia to publiſh, by a ſpeaking trumpet, as follows: "*In this town or province at preſent reigns ſuch or ſuch a Khan!*" During the reign of Kerim-Khan, the proclamation was made in the following words:—"*This town is now governed by Kerim-Khan-Vakil, or by ſuch or ſuch a Khan.*"

Abdul-

Abdul-Fettaa-Khan, being thus eſtabliſhed on the throne of his father, quelled the inſurrections around Iſpahan, and returned to Shiras. Thither he immediately invited his uncle, Saduk-Khan, who, without delay, transferred his government to another perſon, and haſtened to the Court. Saduk-Khan at firſt evinced no inclination to aſſume power, and only endeavoured to aſſiſt his nephew with his counſel on ſtate affairs. But Abdul-Fettaa, inſtead of conſolidating his Empire, and reducing the revolted Khans of the provinces to their duty, ſhut himſelf up in his Harem, increaſed the number of his concubines, indulged himſelf in every ſpecies of voluptuouſneſs, and thus forfeited the attachment of all his ſubjects. When Saduk-Khan obſerved that his counſels were unavailing, he reſolved, towards the end of the year 1779, in concert with the principal counſellors of the Empire, to impriſon the imbecile Abdul-Fettaa-Khan in his Harem, and aſſume the reins of Government. It is aſſerted that, on this occaſion, the mother of the ſovereign barricaded herſelf in a quarter of the Harem, and, with her guards, reſiſted to the laſt extremity, exhorting the people from the top of the walls, to aſſiſt the lawful heir to the throne, till ſhe was compelled to ſubmit to the uſurper.

Saduk-Khan had ſcarcely aſcended the throne of Perſia, when he found a rival in the perſon of his ſon-in-law, Ali-Murat-Khan. He was a young man of the greateſt expectations, and had been made Serdar, or General, under Kerim-Khan, who had a great affection for him, and ſent him at the head of an army againſt Kirmanſhah, in the neighbourhood of Hamadan, where he was ſtationed, when the abovementioned political changes took place at Shiras. Turning this circumſtance to his own advantage, he endeavoured to attach the army to his intereſt,

tereſt, and to render himſelf formidable by rebuilding ſeveral forts in the vicinity of Hamadan, in order to ſtand a ſiege, if neceſſary. All the artifice of Saki-Khan could not induce him to viſit Shiras; and he became miſtruſtful of his father-in-law, Saduk-Khan, who alſo invited him to that city. Ali-Murat-Khan reinforced his army with a corps of about one thouſand Turks, whom he had collected in the environs of the frontier town of Kerkud, and marched, in the year 1780, againſt Iſpahan. Meanwhile, according to ſome accounts, Saki-Khan loſt his life in the town of Yeſdhaſt, in the expedition againſt Ali-Murat-Khan. All the towns through which he marched ſurrendered to the latter, without oppoſition, and furniſhed him with conſiderable reinforcements, which induced him to undertake the bold enterprize of proceeding againſt Iſpahan.

He conquered that city without difficulty, eſpecially as his Turks had, by their ſuperior bravery, intimidated the Perſians.

At the conqueſt of Iſpahan, numerous depredations were committed by the victorious army. The Armenian churches were plundered, and the Biſhop of that See received the baſtinado on the ſoles of his feet, in order to compel him to diſcover the eccleſiaſtical treaſures.

During theſe tranſactions, Sylſigar-Khan, of the province of Hamſa, revolted. The cities of Sengan and Soltania are ſituated in this province. He had been appointed Governor of Hamſa by Kerim-Khan, and was with the army before Baſſora, when the latter died. In conſequence of that event, Sylſigar-Khan left the army ſecretly, and increaſed the number of his adherents in his own province. Having firſt made priſoner Hidaet-Khan, of Gilan, he conquered Kaſbin, and was encouraged by this

ſucceſs to march againſt Iſpahan. Ali-Murat-Khan, who was at this time in poſſeſſion of the city, took the field againſt him, defeated, and compelled him to ſeek an aſylum in the borough of Akbulak. Here he was made priſoner by Ali-Khan, and delivered up to Ali-Murat-Khan. The victorious Ali-Khan now brought Hidaet-Khan, together with Sylſigar-Khan, before the ſovereign *, and ſolicited the puniſhment of Sylſigar-Khan, while he offered to pay Ali-Murat-Khan a tribute of 50,000 rupees, and 2000 batman † of ſilk, on being re-eſtabliſhed in his poſſeſſions. The ſovereign being induced by theſe promiſes, as well as by the imperious conduct of Sylſigar-Khan, commanded him to be inſtantly put to death, and intruſted Ali-Khan with the government of his province. Hidaet-Khan was afterwards re-conducted under an eſcort of 5000 men, to Gilan, where he was appointed Khan. It is ſaid, however, that in conſequence of the ſubſequent changes and diſturbances, he did not fulfil his promiſe.

All the Khans of the country of Aderbidſhan, and thoſe of Khoi, Tauris, Maragai, Rumi, and Shagagi, ſubmitted to the victorious arms of Ali-Murat-Khan, and gave him hoſtages, ſo that he returned to Iſpahan, ſovereign of all the N. W. region of Perſia. Meantime, Saduk-Khan, who was chagrined at the ſucceſs of his ſon-in-law, ſent an army of 8000 men, under the command of his eldeſt ſon, Alina-Khan, to Yeſd; a town in

* Hidaet-Khan, who had long governed in Gilan, was a Prince of a very humane diſpoſition, and in amity with Ruſſia. He was expelled from his government, immediately after the death of Kerim-Khan, by the treachery of Naſarali-Khan of Ardebil, who had acted in a ſubordinate capacity. Hidaet-Khan hoped to find a protector in Sylſigar-Khan; but the latter confined him in chains.

† The Batman is a weight of fifteen pounds.

the

the vicinity of Iſpahan, to defend that place againſt Ali-Murat-Khan, and to prevent him from taking poſſeſſion of it. The latter being informed of this tranſaction, diſpatched a body of troops to Yeſd, but they were defeated on the firſt attack, and ſo rapidly purſed by Alina-Khan, that his competitor was obliged to fly from Iſpahan to Hamadan. However, he ſoon rallied his troops, and compelled Alina-Khan to make a precipitate retreat from Iſpahan.

After this event, Ali-Murat every day became more ſucceſsful. He ſubdued all the towns in the vicinity of Iſpahan, and rendered himſelf formidable not only to the petty ſovereigns of the provinces, but alſo to the heirs of Kerim-Khan. At length, towards the end of the year 1780, he made preparations to beſiege Shiras, the reſidence of the late Vakil. But as this place was ſtrongly fortified, provided with a powerful train of artillery, and defended by a choſen garriſon, all attempts to take it by ſtorm were ineffectual, and Ali-Murat was obliged to change the ſiege into a cloſe blockade. The garriſon of Shiras ſuſtained this blockade during a whole year with the greateſt fortitude, and though they were neceſſitated to ſubſiſt on the fleſh of horſes, aſſes, and even dogs, yet they voluntarily ſuffered this diſtreſs, rather than ſubmit to a conqueror whoſe cruelty they had ſo much reaſon to dread. Ali-Murat-Khan at length ſucceeded by means of a ſecret correſpondence with a certain Vali-Amet-Khan, a deſcendant of the Shahs, who was retained as an hoſtage by the ſucceſſors of Kerim-Khan. This traitor, in concert with ſome others, opened a gate to the beſiegers during the night, and thus delivered up the city, in the beginning of March 1782. All the inhabitants of that place who had ſurvived the

famine, now fell by the ſword. Saduk-Khan, however, ſhut himſelf up in the citadel, with his twenty-three ſons, thoſe of Kerim-Khan, and ſome truſty guards, ſtill refuſing to ſurrender. Being at length obliged to yield, he paid with his life for this obſtinate reſiſtance. The ſons of Kerim-Khan were deprived of their eyes, and condemned to impriſonment. The city of Shiras was plundered and defolated, infomuch that not a veſtige of its primitive grandeur remained, and all the treaſures of Kerim-Khan fell into the hands of the conqueror.

Ali-Murat-Khan diſpatched couriers with the news of this victory, to all the towns ſubjected to him by conqueſt, and remained for ſome time at Shiras. During theſe tranſactions, he ſent detachments from his army, againſt Kaſbin, to take poſſeſſion of Yezd, and alſo againſt Tekheran, or Teiran. In May 1782, the latter detachment approached the frontiers of Maſanderan; the reſidence of Aga-Mamet-Khan, the only governor who ſtill refuſed to ſubmit to Ali-Murat.

At length, Ali-Murat-Khan returned to Iſpahan, which he made his place of reſidence. All Perſia, except Maſanderan and Aſtrabat, acknowledged his ſovereignty; and though his moſt ardent deſire was to ſubdue this province, that he might be crowned Shah, his characteriſtic prudence and clemency induced him to give repoſe to a country, which had been ſo long devaſtated by war. He therefore appointed as prime miniſter Mirſa-Rabi, a wiſe man who governed the Empire like a father. Travellers who viſited Perſia during his adminiſtration, praiſed the good police and wiſe regulations in that country, as well as the ſafety with which ſtrangers and Chriſtians travelled, and the indulgence which even the lawleſs hordes of ſome provinces evinced

evinced to the caravans. The very name of Ali-Murat-Khan was ſufficient to maintain order and tranquillity. I have been aſſured by M. AGA PHI, the Director of the Academy, who reſided at Iſpahan for ſix months, at the period abovementioned, that though 40,000 ſoldiers were then collected in that city, they committed no exceſſes whatever.

In the interior provinces of Perſia, huſbandmen, mechanics, merchants, and other perſons carrying on trade in towns, were uſually exempted from military ſervice. There are particular tribes who lead a wandering life, ever commanded by their hereditary Khan. All the males of theſe tribes are born ſoldiers. The moſt diſtinguiſhed is that of the Seiſs, from whom Kerim-Khan and Ali-Murat were deſcended, the next are thoſe of Lek, Zend, Savage, Bakhtiyar, Gadſhar, and others of leſs note, which are ſmall paſs over. All theſe tribes were devoted to Ali-Murat-Khan, except that of Gadſhar, which was ſubject to Aga-Mamet-Khan of Maſanderan, and of which he was a deſcendant.

As Ali-Murat-Khan had taken an active part in the conqueſt of Baſſora, the Ottoman Porte was apprehenſive that his ſentiments, like thoſe of his predeceſſor Kerim-Khan, were inimical to the Turks. To prevent any pretext on the part of the Porte, for exciting diſturbances in Perſia, by political intrigue, Ali-Murat-Khan was extremely ſolicitous to remove this ſuſpicion. And in order to convince the Porte of his pacific diſpoſition, he not only terminated all diſputes relative to the frontiers, but he even reſtored Baſſora, and ſent a conſiderable ſum of money to Bagdad, to erect new houſes of worſhip, and repair the old moſques in this ſepulchral ſanctuary of the revered Perſian Saints.

After

After a peaceable reign of five years, Ali-Murat reſolved, in 1784, to make war againſt the Khan of Maſannderan and Aſtrabat, who refuſed to ſubmit voluntarily to his dominion.

Aga-Mamet-Khan being the perſon who, after the death of Ali-Murat, became ſo conſpicuous in Perſia, I am induced to give ſome account of his family, as well as of his exploits. He was the eldeſt of eight ſons of Mahomet-Haſſan-Khan, whoſe anceſtors had been inveſted with that title. Mahomet-Haſſan, however, was only a Bek or inferior nobleman, in the time of Nadir Shah, and was the inſtigator of many commotions at Aſtrabat, the place of his reſidence and education. During the inſurrections which took place after the deceaſe of Nadir Shah, he ſubjugated Maſannderan, and other adjacent countries; and aſſumed the title of Khan, as well as the higher rank of Serdar; a dignity conferred only on the moſt powerful Khans. With this honourable title he reigned twelve years, till, in 1762, he was deprived of his poſſeſſions and life, by Kerim-Khan, with whom he had been at war for many years. This cataſtrophe was accelerated by the treachery of his own people, or he might long have maintained the conteſt. Kerim-Khan took five of his ſons as hoſtages, namely, Aga-Mamet-Khan, Riſa-Kuli-Khan, Dſhaffar-Kuli-Khan, Ali-Kuli-Khan, and Mekhti-Kuli-Khan, who were compelled to remain near the conqueror at Shiras. Aga-Mamet-Khan was deprived of his manhood by order of Kerim-Khan, who conferred the government of the province of Aſtrabat on three of the brothers, after they had become adults. Theſe brothers were, Murtaſa-Kuli-Khan (who afterwards ſaved himſelf by flight to Aſtrakhan), Huſſein-Kuli-Khan, and Muſtapha-Khan. Here they

they at firſt lived in great indigence, till with the aid of the neighbouring Turcomans they conquered all Maſannderan, and the city of Aſtrabat, which had thrown off its allegiance. And as Huſſein-Kuli-Khan was killed by the Trukhmenes, Murtaſa-Kuli-Khan alone reigned over theſe provinces, till the death of Kerim-Khan. Aga-Mamet-Khan being informed of the approaching diſſolution of that Prince, eſcaped from Shiras, with two of his brothers, Ali, and Mekhti-Kuli-Khan. Near the town of Kom, in a ſmall place called Souk-Bulak, or the cold ſpring, by perſuaſions and promiſes he collected about five hundred men, with whom he immediately marched againſt Maſannderan. On his march he met with an eſcort diſpatched from Aſtrabat to the ſucceſſor of Kerim-Khan, with a tribute of twenty thouſand rupees, which he ſeized, and then proceeded without any obſtacle. When the news of his approach reached Murtaſa-Kuli-Khan, he ſent an army of ſeveral thouſand men under the command of his younger brother, Muſtapha-Khan, to prevent the enemy from entering Maſannderan; but theſe troops went over to Aga-Mamet-Khan, and their commander fell into his hands. Murtaſa-Kuli-Khan was now obliged to fly to Aſtrabat, and committed the government of the whole province of Maſannderan to his elder brother.

His other brothers, Riſa-Kuli-Khan, and Dſhaffar-Kuli-Khan, having conſequently fled from Shiras, aſſembled an army, and haraſſed the frontiers of Maſannderan and A rabat. At length Riſa-Khan ſurprized his brother Aga-Mamet-Khan, confined him in chains, and made himſelf maſter of Maſannderan. But no ſooner was Murtaſa-Kuli-Khan informed of this event, than he haſtily collected an army, and appeared before Sari, the principal

principal town of Maſannderan. And as Riſa-Kuſi-Khan could not rely on the fidelity of his new ſubjects, he was compelled by menaces to reſign the government again to Aga-Mamet-Khan, who threw him into priſon.

Immediately on Aga-Mamet-Khan finding himſelf firmly reinſtated in his poſſeſſions, he endeavoured by ſpecious promiſes, and all the arts of diſſimulation, to allure his brother and deliverer, Murtaſa-Kuli-Khan, from Aſtrabat; who was ſcarcely in the power of this perfidious wretch, when he ordered the mother, ſpouſe, and children of his viſitor to be impriſoned as hoſtages, and made himſelf maſter of the province. His ſecond brother, Dſhaffar-Kuli-Khan, ſhared a ſimilar fate. Theſe brothers, however, were no otherwiſe ill-treated than by being compelled to live under his government, in a ſtate of vaſſalage.

The arms of Aga-Mamet-Khan were very ſucceſsful in the ſummer of 1781, during which, with the aid of troops from Turcomania, which he had ſubſidized, he conquered almoſt the whole province of Gilan, the town of Kaſbin, and ſeveral other places. As theſe conqueſts, however, had been facilitated by ſubtlety and promiſes which he never kept, he loſt them almoſt as rapidly as he had obtained them; and in autumn he was ſo completely defeated by Ali-Khan of Hamſa, that he was obliged to retreat in the middle of September to his reſidence, the city of Sari, where he found himſelf in a critical ſituation. The ſovereign of Perſia, Ali-Murat, had not then ſeriouſly made a reſolution of reducing him to obedience.

In the year 1784, however, having aſſembled an army of 70,000 men near Iſpahan, Ali-Murat proceeded againſt Maſannderan, and encamped near Tekheran, almoſt at the foot of the Maſannderanian

ranian mountains. Thence he diſpatched a part of the army, under the command of his ſon Sheikh-Veiſſy-Khan, to penetrate into Maſannderan, and another diviſion of troops, commanded by his brother Dſhaffar-Kuli-Khan, in the rear, to ſupport the operations of the former. Ali-Murat being an enemy to blood-ſhed, endeavoured to gain over Murtaſa-Kuli-Khan's brother, Aga-Mamet, by whoſe treachery Sheikh-Veiſſy-Khan had made himſelf maſter of the moſt important places of Maſannderar, and compelled Aga-Mamet-Khan to make a precipitate retreat to Aſtrabat.

During theſe tranſactions Ali-Murat, while in the vicinity of Tekheran, was ſeized with a fever, which degenerating into a dropſy, on account of his intemperate [illegible] other exceſſes, rendered him incapable of warlike operations, by a daily decreaſe of his energy and vigour. His faithful miniſter Mirſa-Rabi, and ſeventeen of his moſt beloved concubines, who had followed him in his campaigns, now became apprehenſive that, if he died on the frontiers of an enemy's country, part of the army would deſert and join that of Aga-Mamet. In order, therefore, to ſecure the government and treaſures for the lawful ſucceſſor, they haſtily decamped, and returned with the army to Iſpahan. Ali-Murat died during the retreat, but his death was carefully concealed. Meantime Bager-Khan, Governor of Iſpahan, had revolted, was declared Generaliſſimo of the remaining military forces, whom he had ſeduced from their allegiance, and made Sheikh-Veiſſy-Khan priſoner. Dſhaffar-Khan, the brother of Ali-Murat, immediately haſtened forward with his army, and Bager-Khan, who had ſolicited aſſiſtance from Aga-Mamet, was defeated, taken

priſoner, and put to death, before any ſuccours could arrive. Dſhaffar-Khan alſo cauſed his nephew to be deprived of his eyes that he might be the ſole Governor of the Empire.

During this ſtruggle for power, Aga-Mamet-Khan again collected an army, made a conqueſt of Tekheran and Kaſbin, and reinforced his troops with thoſe of Ali-Khan, of Sangen. With this army he proceeded to Iſpahan. Dſhaffar-Khan, being unprepared to oppoſe him, fled to Shiras, where he was put to death by his own ſubjects; and his ſon Lutuf-Ali-Khan retired into Southern Perſia. ——Theſe events happened in the year 1792.

The ſucceſsful Aga-Mamet-Khan had now no rival to contend with; however, were Khan, of Gilan, to whom Murtaſa-Kuli-Khan had fled after the death of Ali-Murat.—Aga-Mamet-Khan was the implacable enemy of Hidaet, and being now maſter of Perſia, he reſolved to avenge himſelf on this Prince for former injuries, as well as for having afforded an aſylum to his perfidious brother. But before he declared war, he ſent an embaſſy to demand an explicit declaration, whether Hidaet would acknowledge him as ſupreme Ruler of Perſia, become tributary, and conſequently appear at his Court to pay him the homage due to a Sovereign. Hidaet-Khan being apprehenſive of treachery, ſent an anſwer in writing, that he would acknowledge him as his Sovereign, was willing to pay tribute, and to ſend his ſon as an hoſtage, but refuſed to appear before him in perſon. On receiving this anſwer, Aga-Mamet-Khan ſent a powerful army againſt him. Hidaet being aware that he could not defend himſelf at Raſht, his place of reſidence, ſent all his treaſure to the port of Sinſili, intending to embark with it in the

Ruſſian

Ruſſian frigates at anchor there. He arrived at that town, with his family and the moſt faithful of his ſervants, being determined to ſeek an aſylum in Ruſſia, if he could not obtain pacific conditions from Aga-Mamet-Khan. After a month's ſiege the enemy entered Sinſili; and Hidaet, with his ſons, haſtily left that place in a boat, with an intention of going on board a Ruſſian veſſel.—But, for reaſons foreign to this narrative, the Ruſſians refuſed him protection. Meantime the enemy reached the ſhore; Hidaet was ſhot in the boat, fell into the water, and thus terminated his life: when a great part of his treaſures were re-landed. His ſons were brought to Aga-Mamet-Khan, who cauſed them to be made eunuchs.

Murtaſa-Kuli-Khan, having taken the precaution to retire into the dominions of Fett-Ali-Khan, of Derbent, who died about that time, had the good fortune to eſcape, in May 1792, to Aſtrakhan, where I ſaw him. He afterwards went to St. Peterſburg, and now reſides at Kiſlar, with a conſiderable penſion granted by Ruſſia, who has taken him under her protection. After this ſeries of events, Aga-Mamet-Khan remained abſolute Sovereign of Perſia. It is ſaid that, notwithſtanding the deformity of his perſon, his love of juſtice renders him generally reſpected. He is of the tribe of Kadſhar, whoſe faithful adherents placed him on the throne of Perſia. Of the remaining brothers, Dſhaffar-Kuli-Khan loſt his life in the commotions, another was killed by the Turcomans, and Muſtapha-Kuli-Khan was alſo deprived of his ſight. Aga-Mamet-Khan has nominated as his ſucceſſor, Baba-Serdar-Khan, the ſon of his brother who fell by the hands of the

Turcomans. The preſent Sovereign is about fifty-five years of age, tall, and ill-favoured; and though an eunuch, he keeps a number of concubines. He is ſaid to be ambitious, proud, and rather mercenary; but uncommonly prudent and artful. Perſia appears to have acknowledged him for her ſovereign, more from a deſire of peace than any real attachment.

During my reſidence in Aſtrakhan, I became acquainted with the heirs of the late Grigori Safarov Shafraſs, the Armenian, who ſold the celebrated large diamond, which is now ſet in the Imperial ſceptre of Ruſſia. The hiſtory of this diamond, which holds ſo diſtinguiſhed a place among thoſe of the very firſt water, may probably afford entertainment to my readers, as I ſhall thereby refute many falſe reports which have been circulated on this ſubject.

Shah Nadir had in his throne two principal Indian diamonds; one of which was called the Sun of the Sea, and the other, the Moon of the Mountain. At the time of his aſſaſſination, many precious ornaments belonging to the crown were pillaged, and afterwards ſecretly diſpoſed of by the ſoldiers who ſhared the plunder.

Shafraſs, commonly known at Aſtrakhan by the name of Millionſhik, or, the man of millions, then reſided at Baſſora, with two of his brothers. One day, a chief of the Avganians applied to him, and ſecretly propoſed to ſell, for a very moderate ſum, the beforementioned diamond, which probably was that called the Moon of the Mountain, together with a very large emerald, a ruby of a conſiderable ſize, and other precious

precious ſtones of leſs value. Shafraſs was aſtoniſhed at the offer, and pretending that he had not a ſufficient ſum to purchaſe theſe jewels, he demanded time to conſult with his brothers on the ſubject. The vender, probably from ſuſpicious motives, did not again make his appearance.

Shafraſs, with the approbation of his brothers, immediately went in ſearch of the ſtranger with the jewels, but he had left Baſſora. The Armenian, however, met him accidentally at Bagdad, and concluded the bargain by paying him fifty thouſand piaſtres for all the jewels in his poſſeſſion.—Shafraſs and his brothers being conſcious that it was neceſſary to obſerve the moſt profound ſecrecy reſpecting this purchaſe, reſolved, on account of their commercial connections, to remain at Baſſora.

After a lapſe of twelve years, Grigori Shafraſs, with the conſent of his brothers, ſet off with the largeſt of the jewels, which had till then been concealed. He directed his route through Sham and Conſtantinople, and afterwards by land through Hungary and Sileſia to the city of Amſterdam, where he publicly offered his jewels for ſale.

The Engliſh Government is ſaid to have been among the bidders. The Court of Ruſſia ſent for the large diamond, with a propoſal to reimburſe all reaſonable expences, if the price could not be agreed upon. When the diamond arrived, the Ruſſian Miniſter, Count Panin, made the following offer to Shafraſs, whoſe negociator, M. Lafaref, was then jeweller to the Court. Beſides the patent of hereditary nobility, demanded by the vender, he was to receive an annual penſion of ſix thouſand rubles during life, five hundred thouſand rubles in caſh,

caſh, one fifth part of which was to be payable on demand, and the remainder in the ſpace of ten years, by regular inſtalments. The capricious Shafraſs likewiſe claimed the honour of nobility for his brothers, and various other immunities or advantages, and perſiſted ſo obſtinately in his demands, that the negotiation was fruſtrated, and the diamond returned.

Shafraſs was now in great perplexity. He had involved himſelf in expences, was obliged to pay intereſt for conſiderable ſums he had borrowed, and there was no proſpect of ſelling the jewel to advantage. His negotiators left him in that perplexity, in order to profit by his miſmanagement. To elude his creditors, he was obliged to abſcond to Aſtrakhan. — At length, the negotiation with Ruſſia was recommenced by Count Grigory Grigorievitſh Orlof, who was afterwards created a Prince of the Empire; and the diamond was purchaſed for four hundred and fifty thouſand rubles ready money, together with the grant of Ruſſian nobility. Of that ſum, it is ſaid, one hundred and twenty thouſand rubles fell to the ſhare of the negotiators, for commiſſion, intereſt, and ſimilar expences. Shafraſs ſettled at Aſtrakhan, and his riches, which by inheritance devolved to his daughters, have, by the extravagance of his ſons-in-law, been in a great meaſure diſſipated.

Journey from Aſtrakhan to the Lines of the Caucaſus.

It would have given me much ſatisfaction to have protracted my ſtay at Aſtrakhan, where I found numerous objects of amuſement and inſtruction hitherto unexplored, though M. Gmelin has publiſhed a detailed deſcription of this important city. But as the autumn approached, I was deſirous to obtain ſome knowledge of Mount Caucaſus, though I had a long journey to make into Taurida. I was conſequently obliged to haſten my departure, and left Aſtrakhan with regret.

On the 26th of Auguſt, in the afternoon, I directed my travelling carriages to be ferried to the weſtern bank of the Volga; and on the evening of the ſame day, the Captain of this

Port,

Port, Brigadier Akhmatof, ordered one of the Admiralty barges to conduct me and my family to that place, where we paſſed the night in a very convenient ferry-houſe, built for the accommodation of travellers.

On the 27th in the morning, we began our journey on the road to Kiſlar. Two verſts from the principal current, we travelled in a retrograde direction, and paſſed over a floating bridge conſtructed of ſolid timber, which had lately been rebuilt. We then croſſed the adjacent arm Solanka, called in the Tartar language Baltſhahtſha, and in the Kalmuk Khonkoll. It iſſues from the main river, oppoſite the higher part of Aſtrakhan, and again falls into it below that city. At the diſtance of ſeven verſts from Aſtrakhan, we paſſed another branch of water which the Tartars call Tinak. It runs ſomewhat higher than the Solanka, and proceeds from the Volga in a Weſtern direction into the uneven ſteppe, forming ſome ſtanding pools between the eminences. At the part where the Kiſlar road leads over this branch of water, there is a military poſt of the Kozaks, called Tinakſkoi; and on the oppoſite ſide is an eminence, called the Mayaſhnoi Bugor, or hillock for ſignals. Near the Tinak, and another branch of water proceeding from an higher part of the Volga, immediately below the Sharenoi Bugor, the Tartars have planted melon gardens in a few fertile ſpots. They are watered from the abovementioned branches, by peculiar machines.

Near theſe branches we paſſed another which the Tartars call Malgara; and after, travelling twenty-two verſts and a half from Aſtrakhan, we reached the arm of water called Koſkotſhu, which

which iſſues from the Volga, and terminates in the ſteppe. Here is eſtabliſhed a poſt-ſtation; and at this place, as well as at all the others where we ſtopped, horſes were kept in readineſs for our journey.

The whole of this road lay on an uneven and rather ſandy ſteppe, into which the beforementioned arm of water extended, and formed ſedgy marſhes lying between the ſand hills, though, in general, unconnected with each other. Beſides theſe, we noticed ſeveral deep lakes called Beſhkoll; and the hills were particularly conſpicuous, when viewed from the oppoſite ſide.

The lower road of Kiſlar which croſſes the Koſkotſhu, runs cloſe to the ſea-ſhore, in the vicinity of the poſt-ſtation. But as this arm of water, and all the ſucceeding branches of the Volga, on the ſteppe, were ſwelled by the long-continued S. E. ſea-winds, and as the fords were too deep, we were obliged to make a circuit of about twenty verſts, by proceeding in a weſtern direction along the Beſhkoll. Meantime we diſpatched an expreſs on horſeback, by the uſual road to the poſt of Glubokinſkoi, diſtant only twelve verſts, that he might ſend the horſes to meet us on our circuitous road, which was ten verſts from that ſtation. Glubokinſkoi is a remarkable place; it contains a number of inhabitants; and the Bolſhaya Solanka is a noted quay to which flat-bottomed veſſels are ſent to be freighted with ſalt.

At the extremity of the Beſhkoll, we paſſed near a long ſaline lake called Beſhkolſkoi, which at this period had depoſited a conſiderable incruſtation of ſalt around its edge. The baſon-like form of this lake, the ſhore of which is indented with traces of rain, ſufficiently indicates, that, together with ſome ſmaller

adjacent ſalt-pools, it has originated from a ſea-gulph covered with drift-ſand. The upper part of the banks of the ſalt-lakes in this tract was overgrown with the perennial *Salicornia ſtrobilacea*, which covered ſeveral ſpots of the ſoil. Intermingled with this plant there grew in abundance, and in full bloſſom, the *Salſola monandra* and *roſacea*, *Polycnemum ſedifolium*, *Chenopodium maritimum*, *Statice fruticoſa* and *Frankenia hirſuta*. The ſurface of the low moiſt ſhore was covered with an intermixture of the green leaves and red bloſſoms of the *Salicornia herbacea*, but not a plant was to be ſeen near the ſaline waters.

Beyond the ſalt-lakes of Beſhkoll, we travelled over a high ſteppe, and paſſed by another branch of water which iſſues from the Volga, and is called Baiguſhuk. We proceeded over the continued high ſteppe to the Aſhe-Baiguſhuk, ſignifying the bitter or brackiſh Baiguſhuk, which joins the former branch, and certainly is the great Solanka beforementioned. Here the Tartar Yurtes were ſtationed. On the ſame evening, we travelled eighteen verſts farther to the ſmall lake Bugulſhan, to which we had ordered poſt horſes from the village Griſheva, or Dſhuruk, ſituated fifteen verſts thence on the direct road, and inhabited by Kozaks.

The diſtance from the Tinak, to the branch of water called Dſhuruk and the ſtation on its banks, is computed by one menſuration, to be ſeventy three verſts, but by another ſurvey it is only ſixty ſeven verſts and a half. The diſtance from Koſkotſhu to Glubokinſkaya priſtan is twelve verſts, and thence to the ſtation Kurotſhkina, through which we did not paſs, fifteen verſts, and laſtly, eighteen verſts to Shuruk, meaſured from the neareſt poſt-road. Half way between Tinak and Shuruk,

Shuruk, there is an arm of water which runs into the country, by the Tartars called Alata, and by the Kalmauks, Kolkothu; the water of Kurotſhkin immediately follows, and at length the Kartuſan, which, as well as the Dſhuruk, proceeds from a common outlet of the Volga. All theſe waters were impaſſable in conſequence of the ſea-winds, and we were therefore neceſſitated to take the circuitous road before deſcribed.

In the vicinity of theſe branches of water, ſuch as Malgara, Koſkotſhu, Beſhkoll, Baiguſhuk, Alata, Kurotſhkin, Kartuſan, and Shuruk, many ſaline lakes and pools of different extent are ſcattered, which in ſummer produce incruſtations of ſalt, that are collected from the moſt conſiderable of their number for the imperial magazines, and tranſported by water. This ſpecies of ſalt, however, is obtained from lakes which I ſhall have occaſion to mention in the ſequel*. Thoſe ſaline lakes, from their adjacency to the Caſpian Sea, and their natural formation, appear to have originally been gulphs, which are indebted for the ſalt they contain, to the ſea-water confined in them, and diminiſhed by evaporation. They ſeem to have loſt their former communication with the ſea, either by having been filled up with mire, or by the gradual retreat of its waters. Moſt of

* The ſalt ſold by government is moſtly collected from the following lakes: 1ſt, from the ſix principal, thoſe of Baſinſki and Baſhmatſhagi, diſtant one hundred and thirty verſts from Aſtrakhan; 2d, from the ſeven lakes of Kobylſki, diſtant one hundred and ſixteen verſts; 3d, from ſix lakes in the vicinity of Koſtromſkoi, ſeventy verſts from Aſtrakhan, where a ſalt guard is ſtationed near Dſhuruk; 4th, from a lake adjacent to Darminſkoi, diſtant forty verſts from the city; 5th, from the five remarkable lakes in the neighbourhood of Baiguſh, diſtant thirty four verſts; and the ſixth from the ſalt-lake of Orloffkoi, diſtant one hundred and forty verſts. The ſalt obtained from theſe lakes is tranſported along the Volga to the interior provinces of the Empire.

theſe lakes are found in very extenſive cavities of the ſteppe, in which a large quantity of ſea-water remained, and its concentrated brine was neceſſarily collected in the loweſt ſituations. All the ſmall lakes adjacent to the Caſpian Sea, eſpecially thoſe between the Volga and the Kuma, as likewiſe the lakes of Taurida, appear to have had a ſimilar origin.

On the 28th in the morning, we firſt paſſed a ſmall ſalt-pit, and afterwards a larger winding lake called Kartuſanſkoi, which had a conſiderable incruſtation of ſalt. In the interſections formed by the rain along its ſteep bank, we ſaw the ſolitary *Salicornia foliata*, and a remarkable ſpecies of creeping graſs, which in its ſize and foliage reſembled the *Agroſtis pungens*, but produced a very different ear, with ſimple filaments and double anthers. On the loweſt bank, I ſaw marine plants ſimilar to thoſe formerly mentioned. I alſo obſerved among the *Salicornia herbacea*, a non-deſcript genus belonging to this family of plants, which I have termed *Salicornia pygmæa*. From the ſaline lake of Kartuſanſkoi the road at firſt extended towards the S. W., and ſomewhat farther it took a ſtraight ſouthern direction over an eminence, on the ſummit of which there was a pit filled with drift-ſand, mixed with fragments of ſhells, and entirely covered with the *Alhagi*. We deſcended from this height to the large arm of water called Kartuſan, and after travelling over ſeveral elevations and ſaline marſhes, we arrived at the Dſhuruk, a branch of water covered with the large Caſpian ſedge. The *Statice ſcoparia* grows abundantly in the marſhes, and its leaves are generally covered, on the lower ſide, with large ſaline globules like drops of dew. This plant is collected for making

making brooms, along the outlets of the Volga, near Aſtrakhan. About one verſt and a half from the dry extremity of the before-mentioned branch of water, there is a poſt-houſe, in a decayed ſtate, and a ſmall village of twelve farm-houſes, inhabited by the Kozaks of Aſtrakhan.

We travelled along the bank of theſe ruſhy marſhes till we reached their upper extremity: they abound with various ſpecies of wild fowl; on the miry bank we obſerved the *Hippuris*, and in the water, the *Najas maritima*, and *Marſilea natans* growing in abundance. After paſſing an eminence, we ſaw a ſaline lake nearly dry, which had depoſited a conſiderable cruſt of ſalt upon its mire. We then proceeded over another height and a ſmall ſalt marſh. The neareſt ditch of water which we croſſed was called Adſhuk-hadſhi, by my Tartar guide; and we afterwards paſſed over a ſalt-marſh called Etikeſhee, beyond which the next elevation terminates with a hillock of a ſingular appearance. In this region we obſerved only marine plants which grew cloſe to the ground, and overſpread its ſurface; though in other ſituations they were erect. The *Atriplex laciniata* was moſt numerous: the *Statice ſcoparia* alone had ſtraight ſtalks; it appeared in many ſpots as if ſown, and was in full bloſſom.

The ſurface of all the higher part of the ſteppe, over which we had travelled, was a mixture of clay and ſand; but the banks confining the branches of water and circular pits were covered with graſs. Theſe pits have no communication with the ſea; yet the water which they contained, was, in conſequence of its partial evaporation, ſtrongly impregnated with ſalt, but leſs ſo where the drift-ſand had been edulcorated by the

the rain-water. On the elevations or ridges which extended from the weſtern part of the ſteppe, there were ſeveral ſmall ſand-banks entirely covered with the *Albagi*.

Beyond Etikeſhee we obſerved large ſand-hills, on which the *Nitraria* flouriſhed in a ſaline ſoil covered with drift-ſand. We next diſcovered two dry ſaline lakes ſurrounded with eminences, one of which was like a figure of 6, and environed by a dry and elevated bank. In this we found ſaline incruſtations marked with figures reſembling trees. The footſteps of horſes in the mire were covered with a hollow cruſt of ſalt ſimilar to ice. The *Salicornia ſtrobilacea* not only grew here in the ſame profuſion as near the other lakes, but even ſo exuberantly that a ſingle plant often covered more than a ſquare fathom of the ſurface.

We left this ſaline tract, and after travelling over the heights we arrived at a large branch of water called Kara-baitall. It terminates in a bay bordered by an extenſive valley, ſkirted as it were by a moving ſea of ſand, which preſented a proſpect ſuch as I had never before witneſſed among ſand-banks. The water in this gulph was of a greeniſh colour, like that of the Caſpian Sea. It is evident however, that this water originated from the lower part of the river, before it fell into that ſea.—Proceeding along the bank for ſome diſtance, we paſſed over eminences to the firſt of the three branches of water, by the Tartars and Kalmuks called Baſſis, and by the Ruſſians, Baſſi. Soon afterwards we reached the ſecond branch, where we ſaw a decayed poſt-houſe belonging to the ſtation eſtabliſhed there, and called Baſhmotſhagi, twenty two verſts and a half from the Kara-baitall. Here ſeveral thouſand horſes belonging to the Kalmuks

of

of Yandyk were watered; a ſmotlight which not a little contributed to enliven the proſpect of the conecountry, in the midſt of this deſart. Herds of camels ſcattered over k-Kthe hills; a romantic variety of eminences; marſhes frequented i wa by numbers of the ſcarceſt birds; ſalt-pits and lakes; a peculiar kiedelnd of verdure which flouriſhes in a ſaline ſoil; excluſive of otheak,r common European plants, rendered my journey through the hesleſart uncommonly agreeable, eſpecially on this and the ſubſequen wat day.

We travelled round the extremity of of the ſecond Baſſis, which was encompaſſed by a low ſandy coulher ntry, frequently inundated by the ſea, and paſſed near the thnuird Baſſis, where we ſaw ſeveral dry ſalt-pits and two ſmall ſalle ne lakes. On the eminences we obſerved a remarkable kind ch of plant which flouriſhed in great abundance, being frequently frtom five to ſix feet high, and ſimilar to the *Salſola ericoides*. After S travelling over various gentle elevations, ſometimes ſandy, ſomegitimes argillaceous, as well as over an uneven ſteppe, we arrivend at the pool Shedeli, or, as the Ruſſians name it, Sinſili. Here we found another poſt-ſtation, diſtant twenty two verſts and a halfou from the former.

This water proceeds from the far-extended hi bay of the Volga. It forms ſeveral deep marſhes overgrown wawith ſedge; they are filled by the ſea winds, and contain numnbers of large and excellent fiſh of different kinds. The proper bnranch terminates near the poſt-road, but when long continued an d violent hurricanes from the ſea repel the water from the inletos of the Volga, it paſſes over the road, and completely inundisates the lower region of the ſteppe to a great extent. Hence thne ſoil, being covered with a brackiſh water, is impregnated with ſalt, and produces marine plants. To the right of o ur road on

the

the ſteppe, were likewiſe ſeveral ſalt-lakes, of a nature ſimilar to thoſe beforementioned.

Between Shuruk and Shedeli, at which latter place we arrived towards night, ſeveral other branches of water proceed from the Volga and run weſtward into the ſteppe, but do not uniformly extend as far as the poſt-road of Kiſlar. The firſt branch, on leaving Shuruk, is called by the Kalmuks, Utu-Shuruk, by the Tartars, Sheler-ſhekan, and by the Ruſſians, Blagaya Krep.—Then ſucceeds the branch of water beforementioned, which the Tartars call Kayrabaital, and the Ruſſians Kobylſkaya retſhka, or the river of ſhrimps. Along the northern ſide, between the elevations of the ſteppe, there are ſcattered many large and ſmall lakes of a circular form: they depoſit ſalt, which is conveyed thence in boats to the Imperial magazines. The ſeven moſt conſiderable of theſe lakes are generally called by the names of Kobyliſki, or Kobylinſki; and two others that depoſit a reddiſh ſalt, having an odour like that of violets, are called Malinoffkye, or the raſpberry lakes. Several pools, which have received no name, alſo depoſit a ſmall quantity of ſalt. The boats are ſent up the Kobylſkaya retſhka, and are loaded near the Kobylſkaya priſtan, with the ſalt which has previouſly been carried thither.

Near the three inlets of water called Baſſis, which unite towards the mouth of the Volga, and form the Podreſnaya-retſhka, we obſerved ſeveral ſhallow ſalt-lakes of a circular form. Six of theſe, on account of their rich impregnation with that ſubſtance, are appropriated to the Crown, and called the lakes of Baſſinſki, but the others have no diſtinct names.

There

On the ſouthern bank of another arm of water, which runs parallel with that beforementioned, and which the Kalmuks and Tartars denominate Kultuk-Kon, there is a large ſalt-lake called Orloſſkoe. All theſe arms of water with which the Burguttu unites between Orloſſkoe and Shedeli, have received from the Kalmuks the general name of Matzak, by the Ruſſians corrupted into Motſhagi. In the ſedgy marſhes of theſe waters the Kalmuks find abundant fodder, and a warm ſhelter for their cattle during winter. The denomination of Motſhagi is applied to theſe branches, as far as the Kuma, where the ſouthern boundary of the winter paſturage of the Kalmuks is now determined. From this line begin the paſtures of the Trukhmenes or Turcomans, who in winter retire towards the Terek.

On the 29th of Auguſt, about a quarter of a verſt from the poſt-houſe, and at the extremity of the Shedeli, we paſſed a village conſiſting of fifty habitations belonging to the Tartars of Kaſan. Theſe people were formely more numerous, and dwelt near the Upper Sarpa; but, on account of the unwholeſome ſituation, they were tranſplaced hither; though, at firſt, they ſettled ſomewhat lower on the banks of the Shedeli.

From this place we proceeded over high ſand-banks, and a variety of hills and vallies, which moſtly extended in a North Weſt direction. On one of the higheſt elevations we obſerved a conſiderable bank of quickſand, which the violent South Weſt wind, that prevailed ſince our departure from Aſtrakhan, had heaped in ridges. All the ſand on this ſide is thrown up by the Caſpian Sea from the maſſes carried along by the current of the Volga, when it inundates the inlets and low regions;

and the ſand being dried after the water retires, it is gradually carried by the winds into the ſteppe, and accumulated in ſand-banks. It is probable that all the ſand-hills on the weſtern ſide of the Volga, and as far as the Kuma, have thus originated. The hillocks occupy tolerably wide tracts of the ſteppes, and have in ſome degree changed the face of the low countries, which perhaps at a former period ſtretched in an uninterrupted expanſe from the Caſpian Sea to the ſaline marſhes, whence the Manytſh derives its ſource. If theſe ſand-hills which have cloſed the mouth of the Kuma did not exiſt, the Caſpian Sea would in my opinion, by riſing only a few fathoms, inundate the low ſteppe near the ſource of the Manytſh, and thus have a continual outlet.

We deſcended from theſe banks of driſt-ſand, of which we obſerved a long ſucceſſion, to a lower arm of water called by my Tartars, the Kokſhi or Kokſhon. At a ſhort diſtance, after croſſing ſeveral elevations with ſand-hills and pits in a N. W. direction, where ſcarcely any thing grew but two kinds of wormwood, the *Artemiſia maritima* and *Auſtriaca*, we arrived at a narrow marſh, called Shuraly, at the extremity of which we ſaw an iſle covered with ruſhes, and around it a wide valley which is ſometimes inundated by the ſea. Thence we proceeded over a ſteppe alternately level and varied with gentle ridges, among which there were ſeveral ſalt-pits. Here the *Frankenia hirſuta*, and the *Phleum ſchænoides* and *Schœnus aculeata* two ſimilar plants, grew in great abundance. Beſides theſe, the ſoil produced nothing but the *Salicornia herbacea* and *Atriplex laciniata*. After travelling twenty two verſts and a half, we came to the next poſt-ſtation ſituated on the banks of a branch of water

water called Batkaly, from which it takes its name; where we obſerved a ſpacious hut built of clay.

Beyond Batkaly we paſſed a number of ſandy elevations, and flat marſhes which are inundated by the ſea, and the ſoil of which is generally impregnated with ſaline particles. The *Ceratocarpus ſalinus*, or *Atriplex pedunculata*, Lin., *Statice ſoparia*, and *Tamarix Gallica* grow abundantly in the marſhes. We next came to two ſwampy inlets called by the Kalmuks, Gaſhoon-Sala, and by the Ruſſians, with the ſame meaning, Gorkaya-reka, or the bitter river. The Tartars call the ſecond of theſe inlets Kallaus, and the Kalmuks, Shurguttu; I obſerved on their muddy and ſaline banks, grey tamariſks, ſome of which were in bloſſom. Very few of theſe innumerable plants were a foot high, and grew from ſeeds almoſt imperceptible, which probably had germinated the preceding autumn, and a few of which were now in bloſſom. Some gardeners have doubted, whether the ſeed of the Tamariſk, as well as thoſe of willows and poplars, would produce plants, if ſuperficially ſown in a very moiſt ſoil, or when ſpontaneouſly ſcattered. Yet the preceding obſervation ſatisfactorily proves to me, that they really grow from ſeeds. It would probably be better to place them under glaſſes, like moſt of the delicate and fructiferous ſeeds. Thus I have found, that not only the ſeeds of the *Auricula* and willow, but ſeveral ſpecies or varieties of the *Rhododendron* and *Azalea*, will germinate eaſily and abundantly; though it is well known that thoſe ſeeds vegetate with difficulty; I have alſo effected the ſame purpoſe with the pollen of fern and moſs. Theſe plants thrive more luxuriantly when the glaſſes are removed in the evening, at night, or during a gentle ſhower, than if they were expoſed to the

air and the ſun. All the mountain-plants, which are, however, very difficult to rear, ſhould be carefully attended to in this manner; becauſe the air under the glaſſes becomes as ſtrongly phlogiſticated as it uſually is on high mountains.

At length, about twenty verſts from the Caſpian Sea, after deſcending the laſt-mentioned ſandy ridge behind the Shurguttu, we arrived at a low and uniform plain, which extended farther than the eye could reach; though it was interſected with ſeveral ſmall lakes, and ſtreamlets. From this plain, which the ſea-water, when agitated by ſtorms, inundates far beyond the road, we re-aſcended towards the Weſt, and after travelling five verſts, arrived at the inlet called Alagann, or Ulagann-Ternik, which is twenty two verſts and a half from Batkaly, and is provided with a poſt-ſtation. This plain, in conſequence of the inundation from the ſea, has been univerſally impregnated with ſalt, and produces various marine plants. Among theſe I remarked the *Salſola ſoda* in abundance, a plant which is not very common in other tracts. The exuberant vegetation of theſe plants has in many places produced a ſuperficial ſtratum of black mould. I obſerved near ſeveral of the brackiſh pools, a number of young tamariſks ſpringing from ſeed, ſome of which were nearly a foot high, and in bloſſom. The *Panicum Dactylon* was the predominant plant here, as well as in all the ſalt marſhes which we paſſed this day, and it overſpread conſiderable tracts of the ſoil.

During this day's journey we met ſeveral caravans of the Tartar Arbes, or Araba, ſignifying two wheeled carts, which were partly loaded with madder, and partly with the leaves of the *Cotinus*, or Yaprak. Theſe two commodities are uſed at Aſtrakhan

Aſtrakhan for dying cotton, and manufacturing Morocco leather. Some of the vehicles alſo contained crude ſoda, or Kalakar. It were much to be wiſhed that an attempt were made to manufacture this neceſſary article, the exportation of which would be moſt advantageous after its purification. All the borders of the Caſpian Sea from the Volga to the Terek, and the extenſive ſalt-marſhes near the ſource of the Manytſh, produce the marine plants proper for that purpoſe, in great profuſion.

Our quarters for the night, at Ulagann-Ternik, were far from being agreeable, on account of the midges which, even at this time, infeſted theſe regions in numerous ſwarms. Very early on the 30th of Auguſt, an armed troop of Turcomans came to eſcort us, and a relay of horſes had been ordered at the next ſtation, for the continuance of our journey.—We rode through the upper and fordable part of the inlet of Ulagann-Ternik, and the adjacent extenſive low country which was overſpread with the *Atriplex laciniata*, the *Ceratocarpas ſalinus*, and alſo in ſome places with the *Statice ſcoparia* in bloſſom, which on the ſurface exhibited a beautiful tint of deep violet colour. We afterwards travelled over low ridges into the vaſt ſea-valley Alabuga, which is watered by romantic, connected inlets and lakes, and at certain ſeaſons it is moſtly inundated by the ſea. Though the inundation was not yet at its greateſt height, we were often obliged to paſs through deep water, which in its retreat from theſe low regions generally leaves a multitude of fiſh on the dry land. Near the moſt ſouthern large inlet, where a poſt-ſtation is eſtabliſhed at twenty two verſts and a half diſtance, we found a felt tent pitched for our accommodation by the Trukhmenes, near which I was received by the chiefs and elders of that people.

people.—The guides who had accompanied me from Aſtrakhan, left me at this place.—As the vicinity of the Terek has been deſcribed by the naturaliſts who formerly travelled in that country, I reſolved not to continue my route by the road of Kiſlar, but rather acroſs the deſart to the river Kuma. I wiſhed to viſit this river, eſpecially as its banks had recently been peopled, and had not been deſcribed by any traveller. Thus I expected to make a more inſtructive, and ſafer tour by the fortreſs of Georgieffk, at preſent the principal place on the Lines of the Caucaſus.

The former travellers in theſe regions have given but a ſuperficial deſcription of the country adjacent to the road leading to Kiſlar, though the region along the Caſpian Sea is very remarkable, on account of the manifeſt traces of its ancient connection with the Meotic gulph of the Black Sea. I propoſe to ſupply this deficiency from an authentic journal kept by an engineer, and in which an account is given of the country extending from Alabuga to Kiſlar.

About twenty ſix verſts and a half from Alabuga, in a S. W. direction, a branch of water flows from the Caſpian Sea, and extends into the ſteppe, forming ſeveral inlets, for many verſts towards the Weſt. It terminates in a large lake known in different languages by the name of the White Lake; in the Tartar tongue, Ak-Kul, in the Kalmuk, Tzagann Noor, and in the Ruſſian, Byeloi oſero. The Kalmuks call its connection with the ſea, Erken-Aman. The poſt-road is often interrupted by the extenſive inundation of this lake over the ſteppe, during the ſea-winds. There is a poſt-ſtation at this place. Between the low country of Alabuga, and the current of the White Lake, I obſerved

obſerved another remarkable inlet of the ſea-valley, called by the Kalmuks, Bugatta, which has many lakes and marſhes overgrown with ſedge. At the diſtance of twenty three verſts from the White Lake, there is an ancient channel of the river Kuma, which proceeds to a great diſtance in the weſtern ſteppe, and forms connected pools. This branch, which is partly dried up in ſummer, terminates in ſmall lakes between ſand-hills, near the Caſpian Sea, and is, by the Kalmuks and Tartars, called Kuduk. The poſt-ſtation Khudutzkaya is in its vicinity. At a ſmall diſtance there is another branch of the Kuma, which the Ruſſians call the firſt Podkumok, or Malaya Kuma; but the Tartars and Kalmuks have denominated it, together with the ſucceeding, ſimply Kuma. It forms a ſmall chain of lakes, and pools overgrown with ſedge, but does not extend to the ſea, as it is abſorbed by the drift-ſand.—A third branch of this river, by the Ruſſians called Podkumok, or Srednaya Kuma, which ſignifies the middle current, likewiſe does not reach the ſea. Thus the whole river Kuma, the principal bed of which continues beyond the collateral branch, with a chain of conſiderable lakes and marſhes, forms many ſmall pools in the vicinity of the ſea-ſhore, where it is loſt in the accumulated ſand-banks. When the winds ſwell the ſea on this ſide, and force its waters into the gulph, ſituated directly oppoſite the branches of the Kuma, it overflows the lakes of that river, and the current appears to have a regular efflux. This gulph is denominated by the Ruſſians, Kumſkoi Kultuk, and by the Tartars and Kalmuks, Koſukai.—Between the Kuduk and the firſt Podkumok, there are two ſalt-lakes connected with each other in the form of a horſe-ſhoe, called by the Kalmuks, Yantſyt.—On the ſouthern branch

branch of the Kuma, we arrived at a poſt-ſtation diſtant ſixteen verſts from the former.

Before I proceed, I muſt intreat the reader to examine the map, and compare what I have hitherto ſaid of the low countries inundated by the Caſpian Sea, with what relates to the ſaline low region near the ſource of the Manytſh. It is very probable, nay, almoſt beyond a doubt, that the low countries of Ulagann-Ternik, Alabuga, and Byeloe, are the old bed of the ſtrait, which, agreeable to the hypotheſis advanced in the third part of my former journey, united the Caſpian Sea with that of Azof*. Even at this day, the Caſpian Sea, when ſwelled by tempeſts, eaſily overflows the extenſive low countries before-mentioned. The ſand-hills which at preſent ſeparate thoſe low countries from that of the Manytſh, manifeſtly originate from the ſand-banks thrown up by the Caſpian Sea, and which are carried by the wind into the ſteppe; or perhaps they were in ſome degree formed by the ſand that remained in the ſtrait itſelf, as they occupy only a ſmall tract between the two vallies. Theſe ſands have alſo choaked up the paſſage at the mouth of the large river Kuma, which formerly had a free current into the Caſpian Sea, by the gulph of the ſame name.

About fifty verſts, ſouthward from the Kuma, the Caſpian Sea forms a large bay, the extremity of which expands into an extenſive lake ſurrounded by eminences, and called by the Ruſſians, Kolpitſhie oſero, or the lake of the pelican, by the Tartars, Ak-Kul, or the White Lake, and by the Kalmuks Khalvun-Tzagan-Noor, or, the White Lake of the Heron. This lake ſupplies a long branch with water, which extends into the ſteppe,

* Vide pp. 78. and following of this volume.

and

and is called Yarlatſhi by the Tartars, and by the Kalmuks, Shakrin-Tzagan-Noor. On the northern ſide of the Kolpitſhic oſero, and to the right of the road to Aſtrakhan, I obſerved a large ſepulchral hillock, by the Ruſſians called Bomby, and by the Kalmuks, Toppelge.

Between this gulph and the river Kuma, we obſerved three other bays, or connected lakes, which lay in a weſtern direction and were covered with ruſhes. The firſt is called by the Tartars Kartapyſh, the ſecond, Dvoinoe oſero, or the double lake, and the third, by the Ruſſians, Tarakanie oſero, or the lake of the moths, by the Tartars, Uſſun Boruk, and by the Kalmuks, Tzagan-Noor. Near the ſecond of theſe lakes is a hillock called Tarakanie Bugor, or the hillock of moths, where a poſt-ſtation is eſtabliſhed. Beſide this eminence, towards the Weſt, are two lakes which contain Epſom ſalt. When dried by the heat of the ſun, they yield a ſmall quantity of Glauber's ſalt which cryſtalliſes in a cylindrical form. Farther weſtward in the ſteppe, there is a large lake, rich in ſalt, known among the Tartars and Kalmuks by the name of Akhmurſa, and which ſupplies them with that article for domeſtic conſumption.

Fifteen verſts from the lake Kolpitſhie, where there is a poſt-ſtation, ſeveral chains of lakes extend from the ſea, which the Tartars call by the general name of Shanſharafly. The moſt ſouthern line of theſe waters ſtretches the fartheſt into the ſteppe. In this neighbourhood the Caſpian Sea forms a bay, with broken banks, and numerous iſles. This water has a quay called Otſhinſkaya Priſtan, where all the tranſports deſtined for Kiſlar find an anchorage. Next follow the different mouths of the rapid river Terek, which has thrown up a conſiderable promontory of

ſand and ſoil. Theſe mouths may be diſtinctly traced on the map.

The Trukhmenes or Turcomans, with whom I was now obliged to continue my journey, are a wealthy, well formed, lively people, and more attached to ornamental dreſs than any other tribe of the ſteppes. They are by no means to be compared with their brethren who inhabit the eaſtern ſhore of the Caſpian Sea. Theſe people are independent but poor and uncivilized, as I have myſelf frequently obſerved, while the other Trukhmenes have, under their preſent political conſtitution, improved much in comelineſs and gaiety. Before the Kalmuks took poſſeſſion of the ſteppe of the Volga, they ſubjected theſe very people, made them tributary, and compelled them to migrate over the Yaik. Here they became ſubject to the horde of the Khans of Torgot, who, however, granted them the free exerciſe of the Mahometan religion. On the retreat of this horde* from the ſteppe, the Turcomans roſe in arms, refuſed to accompany their fugitive oppreſſors, and became vaſſals to Ruſſia. They have ſince been removed to the ſteppe of Kiſlar, where they are permitted to lead a wandering life with their flocks and herds, between the Kuma and the Terek. They have a great number of camels, black cattle, ſheep and horſes. Their horſes reſemble the Engliſh breed, and are high, ſwift, ſtrong, and durable; they have hard hoofs, and are upon the whole a much ſuperior breed to the lean and narrow-cheſted horſes of the Kalmuks. They dwell in felt tents exactly ſimilar to thoſe of the Kalmuks; and their only fuel is dried

* Vide, Sammlung hiſtoriſcher Nachrichten, &c. or, A Collection of Hiſtorical Memoirs relative to the Mungolian Nations: Part I. p. 59.

cow-

cow-dung and ruſhes. Their principal food is fleſh, ſour milk, a ſmall quantity of groats, and meal, which they purchaſe from the Ruſſians; but their favourite food is horſe-fleſh. Theſe people appear to lead a very tranquil life; being obliged to perform no other ſervices, than to furniſh poſt-horſes, and do military duty. They are governed by a particular magiſtrate called Priſtaf, who has a very good place, lives among them with ſeveral interpreters, watches over their conduct, and determines all their diſputes, to which they ſeem much inclined. It has often been ſuſpected that they intended to repaſs the Volga and Yaik, in order to rejoin their brethren; but it is highly improbable that ſuch an emigration will be attempted, eſpecially in their preſent ſtate of proſperity, and as the more aged among them are gradually dropping off. The only inconvenience they are ſubject to, is the want of freſh water, particularly in ſummer and autumn. A military rank has been conferred on ſeveral of their elders or chiefs, and all the rich perſons among them appear to be equally deſirous to obtain this diſtinction. The number of their tents amounts to upwards of one thouſand. They are a lively, polite, officious, and communicative people, but extremely indolent; are very expert in archery, and in their excurſions on horſeback are uſually armed with ornamented bows and quivers. They have rich belts and ſabres, and are fond of crimſon-coloured dreſſes, adorned with lace; but this love of finery is not ſo common among any other tribe inhabiting the ſteppes: their caps are generally round, and trimmed with black lamb-ſkins, ſimilar to thoſe of the Poles. They ſhave their heads quite bare, and many of them alſo ſhave their whiſkers; but the old men allow their beard to grow

under the chin. The dreſs of their women and girls exactly reſembles that of the Nagays: and the married women alſo wear a ring in one of the noſtrils, as is cuſtomary among the female Tartars at Aſtrakhan.

From the low country and bay of Alabuga, I travelled S. W. over the ſurrounding ſand-hills. Between theſe heights I obſerved two ſmall ſalt-lakes. When we had reached the ſummit of theſe eminences, the road paſſed over a gently riſing, dry, uniform, and ſandy ſteppe, where beſides dry graſſes, the only plants we could ſtill diſtinguiſh were, wormwood, the baſtard wormſeed, *Salſola proſtrata*, *Chryſocome villoſa*; and ſcattered on different ſpots, we obſerved the *Teucrium Polium*, *Salſola laniflora*, *Aſtragalus tenuifolius*, and *Delphinium Conſolida*. On the moſt elevated ſummits of theſe heights, the wind had drifted the ſand into banks. About thirty five verſts from Alabuga we came to a conſiderable ridge of high ſand-hills called Dſhanai-Ulan. At this place we repoſed during the night, in the vicinity of good clear wells, which were about an arſhine and a half deep in the ſand. The ſprings are near the road which leads from Aſtrakhan to the river Kuma, and on which corn is conveyed. I remarked that the ſand here was in ſome ſpots cemented with a ſlimy ſubſtance, and that it often formed ſteep banks. I alſo frequently obſerved numbers of ſhells and fragments of bones intermingled with the ſand, and was ſurpriſed to find among them a tranſparent piece of belemnite, which muſt have been carried, by the current, from the calcareous promontory of the Caucaſus, among the ſand which formerly compoſed the bed of the Caſpian Sea. The ſoil of this place produced abundance of the *Elymus*, and *Phlomis Herba venti*,

venti, *Herniaria hirſuta*, *Euphorbia Eſula*, and *Chamæſyce*. The laſt, as well as the baſtard wormſeed, and the *Delphinium Conſolida*, were the only plants which had not been devoured by the hungry cattle of travellers. There was alſo a conſiderable number of *Scarites Bucida* *, and a few *Tenebriones*.

On the 31ſt of Auguſt I continued my journey in a S. W. direction. We ſoon deſcended from the high ſand-hills, and arrived at ſalt-pits of different dimenſions, with which the whole plain was interſected, and, as it were, excavated. They were ſteep along the verge, in conſequence of the motion of the water, but became progreſſively ſhallow, dry, and deſtitute of plants. Between thoſe which lay neareſt to us, we ſtill found ſand; but, advancing farther, we obſerved only a dry and argillaceous ſteppe. This numerous ſeries of unconnected ſalt-pools terminated with a very large ſaline pond, extending in a longitudinal direction to the Weſt, and beyond it were ſeveral others on eminences of a reddiſh clay. This extenſive ſaline tract is ſucceeded by a line of drift-ſand, and ſalt-pits, with intermediate ſandy elevations. We at length arrived at a level ſteppe, moſtly impregnated with ſalt, and in ſeveral places covered with ſand, on which tamariſks and other marine plants were diſcoverable. This level ſteppe at length declined, about thirty five verſts from the ſprings and ſand-hills of Dſhanai-Ulan, towards a low ſaline country of a vaſt extent, farther than the eye could reach, and bordered on the ſouthern ſide by a ſedgy tract which continued for many verſts. The Tartars call the latter Kamyſh-burun, or the point of reeds, and ſometimes Kara-Kuyon, or the black marſh of ruſhes. It extends towards the firſt or moſt

* Nov. Spec. Inſectorum, Tab. 6.

northerly

northerly Podkumok, a trace of the Kuma, now filled with ſand. —Theſe ſaline plains are diverſified with barren, miry, or ſandy ſpots, and verdant meadows. The latter produce ſcarcely any other plants but the *Scirpi*, and *Cyperi*, *Atriplex laciniata*, *Chenopodium latifolium*, *Salſola hyſſopifolia*, *Polycnemum ſedifolium*, *Frankenia hirſuta*, *Salicornia herbacea*, *Schœnus aculeata*, and *Phleum ſchœnoides*. We alſo obſerved ſeveral ſmall ſalt-pits, ſome of which were dried up, and others contained water.

Theſe ſaline tracts, or Khaaki, collectively form the continuation of the low country, which is interſperſed with numerous ſalt-pools, whence, as is repreſented on the map, the Manytſh derives its origin. We arrived there, after travelling along the bank of the Sarpa on our road to the Caucaſus, near the angle of high land where it riſes, in a weſtern direction, towards the river Don. This uniformly low country is evidently the bed of the ancient ſtrait which formerly united the Caſpian Sea with that of Azof. Its level is ſo low, that in ſpring it is entirely inundated by the ſnow water. When we farther conſider the traces of water, and the very extenſive weſtern bays and inundated low countries, particularly thoſe of Alagan-Ternik, Alabuga, Byeloi oſero, and thoſe near the mouth of the Kuma, the probability of a former ſtrait gains additional ſtrength. It is eaſily perceptible, that without the high ſand-banks, accumulated by tempeſts, the low countries on both ſides would form one continued valley, ſo that if the water of the Caſpian Sea were to riſe only a few fathoms, it would neceſſarily overflow towards the river Manytſh. I have

have not been able to learn whether the water of the Kuma, which inundates the low country in ſpring, extends as far as the Manytſh, and forms a confluence with that river. From the nature and ſituation of the country, I am induced to believe that this communication actually takes place, and I wiſh that *a ſubject of ſuch importance may be farther inveſtigated.* The general ſaline quality, as well as the ſurface of this low country, which is mingled with ſhells, evidently ſhew that it has formerly been covered by the ſea. The numerous ſalt-lakes, pools, and pits, have been the deepeſt part of the ſtrait, where the black mud of the ſea was accumulated, and in which the confined ſea-water concentrated and retained its ſalt by evaporation. The low places or glens which had outlets, being often waſhed by rain-water, have gradually loſt their inherent ſaline quality, and are now overgrown with plants, none of which are of a marine ſpecies. On the contrary, thoſe deep pits, which are of a circular form, and particularly the argillaceous depths, have ſtill preſerved their ſaline impregnation, and are the true ſoil for the numberleſs marine or kali plants with which the ſteppe abounds. We may reaſonably conjecture that a part of the high country, eſpecially where the ſand is ſolid, formerly conſiſted of either ſand-banks, or ſhallow parts of the ancient ſtrait.

The empty ſalt-pools or fens are of the ſame nature as the ſaline lakes. All the ſalt-marſhes which I obſerved during this journey, as well as in the Caſpian plain, in general, are ſhallow cavities, which in ſpring and autumn contain brackiſh water, but in the firſt fine weather of May, they entirely evaporate, and reſemble the ſoil of a dried quagmire. Their ſurface is compoſed of a tough black mire of different degrees of

of thickneſs. They emit an effluvium like that of putrid eggs, and produce no plants, except the *Salicornia herbacea* which grows around their edge. Their ſurface is covered with a whitiſh efflorescence of ſalt, or rather with an incruſtation, preſenting a great variety of that ſubſtance. In moſt places the common digeſtive ſalt is predominant: the Epſom or cathartic ſalts are leſs frequent in the Caſpian ſteppe. On the contrary, in Siberia *natron*, and cathartic ſalt, are nearly as common as ſea-ſalt, and intermingled in various proportions *. The higher bank, covered with ſand or clayey mire, is productive of other marine plants, particularly the buſhy ſpecies of *Salicornia*, *Nitraria*, and the like; but the ſurrounding ſandy eminences, in ſome places, preſent no traces either of ſalt or marine plants.

Such is the nature of theſe ſaline tracts which are dried up in ſummer, and have been ſo frequently mentioned. The lakes containing ſalt water are commonly very ſhallow, quite flat at the bottom, and only differ from each other in the quantity of water they contain, which apparently proceeds from ſprings. Their black mud, when unmixed with ſand, is ſoft, and gradually ſinks deeper. The quantity of ſalt, however, which the lakes, in general, depoſit only in the month of May,

* If the aſſertion of a certain Dutch writer be true, that, according to the proceſs he has publiſhed (1), marine ſalt can be decompoſed by mixing it with lime and ſand, to the conſiſtence of a tough paſte, ſpreading it on boards to the thickneſs of half an inch, and placing them for ſeveral weeks in a cellar, when a quantity of alkaline ſalt appears on the ſurface, it may be ſuppoſed, that the Caſpian ſteppes, where the ſoil is a calcareous ſandy marl, ought to produce a large quantity of *natron*. But we do not find this ſubſtance here in any particular form. The Siberian ſoil, on the contrary, where pure *natron* often appears in large quantities, contains no calcareous particles.

(1) *Natuur en Scheidekundige Waarneminge over eenige gewigtige Onderwerpen der Geneeſkunde en Oeconomie, in ons Vaderland, door Pet. Drieſſen. Leyden* 1791. 8. Numb. 1.

as well as the purity of that ſubſtance, vary conſiderably. In theſe lakes, the water decreaſes in ſummer, and retires to ſome diſtance from their high banks. None of the ſalt-lakes and marſhes on the weſtern bank of the Caſpian Sea, have ſuch a ſtratified incruſtation of ſalt annually increaſing, as may be obſerved in the lakes of Bogdo, Elton, and Inderſk, near the river Yaik. There, the ample ſtore is continually ſupplied and increaſed by rich ſalt-ſprings; while all the ſaline particles of the other lakes are completely diſſolved by the rains of autumn and winter.

A conſiderable ſaline lake, which the Ruſſians call Madſharſkoe oſero, or the Hungarian lake, is ſituated about twelve verſts from our road, in the extenſive low country juſt deſcribed, and from which the Manytſh derives its ſource. The name of that lake probably originated from a tradition of the highland tribes, and principally from the Circaſſians and Tartars, who are permitted to take their culinary ſalt from this place. It is ſituated on the edge of the low country, is ſurrounded by a dry ſteppe, has nothing peculiar to diſtinguiſh it from the other ſaline lakes, and is four verſts in length, while its diſtance from Byeloi Ilmen, near the Kuma, is computed to be twenty two verſts and a half. It depoſits a conſiderable quantity of ſalt every ſummer, as do alſo two ſmaller lakes, ſituated more towards the North in the ſteppe, one of which is called by the Kalmuks, Bargo-Dabaſſun, from the hillock Bargo in its vicinity. Theſe lakes have been granted to the inhabitants of the Lines of Caucaſus, and to the Kalmuks, for the benefit of

their cattle, becauſe the communication by water was too far diſtant to effect the conveyance of ſalt to the magazines.

We ſtopped to dine at the entrance of the abovementioned narrow tract of country, called Kamyſhburun, which was overgrown with ſedge, and where we found the *Cyperus eſculentus* growing in abundance. In the afternoon, we continued our journey with freſh horſes which had been prepared for us at this place; and keeping the ſedgy tract in view on our left, we proceeded moſtly in a Weſt, and W. N. W. direction; and at length, towards evening, after travelling about fifteen verſts, we arrived in the vicinity of the lake Kaſak Kul. We paſſed the night near this lake, the water of which was ſomewhat fetid; it was ſurrounded by a continued ſaline plain. About half way on our road, we obſerved, on the left towards the Kamyſhburun, a cemetery of the Turcomans in the vicinity of a ſmall ſalt-lake. It conſiſted, as is repreſented in the back ground of plate 10, of two ſquare walls, ſeven arſhines high from North to South, and ſix arſhines long, built of unburnt bricks. The Eaſt and Weſt fronts of the wall had apertures. Within theſe walls each family has a ſeparate monumental hillock, with a pole in its centre. They are ſurrounded with a ditch, except in one place where five common ſepulchral hillocks, likewiſe environed with ſeparate ditches, ſeemed to point out a connection with the whole. At one of theſe monuments there is a piece of freeſtone, which appears to have been a tomb-ſtone: and an half croſs of poliſhed workmanſhip is ſtill viſible at its broken extremity. We here found the *Seſeli dichotomum* growing in a ſpherical form, a plant which became more common as we approached the ſea of Azof.

On

On the 1ſt of September we obſerved, in the ſaline plains around the lake Kaſak, beſides the uſual marine plants, the *Euphorbia Chamæſyce* in abundance, and a ſmall quantity of wild purſlain on ſeveral ſpots. The *Frankenia hirſuta* was ſtill in its moſt beautiful bloom.

Early the next morning we continued our journey, and about five verſts to the left we ſaw a lake covered with ruſhes, which the Ruſſians call Byeloi Ilmen, and the Kalmuks, Ogoto. Farther on we travelled over ſand-banks which were not of a conſiderable height, and appeared to be the boundary of the low ſaline country, which had continued of an uniform appearance for upwards of twenty-five verſts. On this border of ſand-banks we obſerved many ſhells of the Caſpian Sea, though we had not met with any in the low country, either becauſe they were covered with mire, or entirely decompoſed, or perhaps they had been drifted more towards the banks of the ancient ſea. We alſo diſcovered a few marine plants, and among others, the *Gnaphalium arenarium*, *Gallium ſaxatile*, *kali*, and in ſome places the *Alhagi*, as well as liquorice and the *Zygophyllum*, which from the Volga to this place had been rather ſcarce.

After travelling fifteen verſts beyond theſe ſandy elevations, we arrived at a tolerably level and dry ſteppe. We alſo obſerved, towards the Kuma, ſome altars of earth, ſimilar to thoſe generally raiſed by the Kalmuks, in their autumnal feſtival of the lamps, or Sullain-Sfara. We proceeded, for ſome time, along an old road which led from the Kuma to the ſalt-lake Madſhary, and the Volga. After having travelled thirty verſts from our night ſtation, we turned from this road, and proceeded

towards a ſmall inlet formed by the Kuma, where we found freſh horſes in readineſs.

The low country near this river is impregnated with a ſmall quantity of ſalt. We obſerved here a few diminutive tamariſks, but the *Cynanchum*, *Zygophyllum*, and *Centaurea picris* grew in abundance. The bank of the river is frequently covered with ſedge, rather low, while the ſtream is broad and deep, with an argillaceous bed. The water was pretty freſh and tranſparent; it flowed in a ſtrong current, which, about fifteen verſts farther, diſappeared. Near this ſtation we ſaw the tomb of Iſlam Agaſi, chief of a ſmall horde of about one hundred and fifty Nagay families belonging to the caſt of Kaſſailar, which had been tranſplaced hither. This ſepulchral monument conſiſted of two huts made of reeds, and without roofs, one of which contained the body of the chief, and the other that of his wife, who ſurvived him but a very ſhort time.

The dry ſteppe now became quite level, like that of the Sarpa, and produced ſimilar plants, of which ſcarcely a trace had been left by the flocks and herds, except the *Statice Limonium*, *Polycnemum dichotomum*, and the grey *Salſola*, which reſembles the *Ericoidi*: we likewiſe obſerved a few ſmall tamariſks on ſeveral ſpots. After travelling about twenty-five verſts, we pitched our tent, in the evening, in the midſt of the ſteppe, at ſome diſtance from the Kuma, and about ſix verſts from Terny, the firſt village that has lately been eſtabliſhed on the banks of that river. At a diſtance, towards the W. N. W. we ſaw the blaze of a large ſteppe on fire, from which quarter a hot wind had blown upon us during the whole day; though we could not then explain the phenomenon. The *Scolo-*

pendra

pendra morſitans crawled from the crevices of the ground, and ſurrounded the fires kept by the guards. Towards night the clouds portended rain; but before morning they were diſperſed by a violent North wind.

We continued our journey on the ſecond of September; and inſtead of the bare ſteppe we had hitherto traverſed, we found one tolerably rich in plants, among which were ſuch as delight in a ſaline ſoil; for inſtance, tamariſks, the *Salſola cricoides* and *ſedoides*, *Polycnemum dichotomum*, and *oppoſitifolium*, but particularly, numerous ſhrubs of liquorice with flat pods. The low country over which we travelled to the village of Ternovka, or Talovye Terny, was covered with beautiful buſhes of tamariſks, and along the banks of the river were ſome coppices of willows and poplars: the former we firſt obſerved, on advancing towards the ſource of the Kuma.

Terny is one of the lateſt Ruſſian colonies; its inhabitants were tranſplaced from different provinces into this deſert though fertile region. The people, indeed, ſuffered many hardſhips in the beginning of their eſtabliſhment; but the uncommon fruitfulneſs of the ſoil affords them a more promiſing proſpect. This village is ſurrounded by a collateral branch of the Kuma, which is partly dry. In the vicinity of this place there is a bridge over the river, which connects the Tomſki * road leading from Tzaritzin to Moſdok.

* This road has received its name from the regiment of infantry commanded by General Tomſki, who firſt purſued this route through the ſteppe in the year 1773. Their march is deſcribed in the third part of my former Travels, from page 581 to page 591.

This

This road leads to the ſmall Kozak village Volodimerovka, which is ſituated beyond the Kuma: it was built by Major General SAVELIEF, who reſides at Naur; a gentleman well known for his ſtuds and excellent economical eſtabliſhments. He was at that time colonel of the Kozaks; and in the year 1772 led a company of Duboſſki Kozaks from the Volga to the Lines of the Caucaſus, and was the firſt individual who eſtabliſhed a colony on the banks of the Kuma. The peaſants of Terny generally live in ſubterraneous dwellings, or Semlanki, and many of them are almoſt deſtitute of clothing. They have grain in abundance, and their bread is made of the fineſt wheat; but the fertile part of the country extends only from ſeven to eight verſts, beyond which the ſoil again becomes a ſaline and dry ſteppe.

Where the road leads from the high country over the more elevated ſteppe, we obſerved a ſepulchral hillock, the firſt ſince our departure from the bank of the Volga. A conſiderable number of ſimilar tombs were viſible on both ſides of the Kuma. The principal monument was of an uncommon ſize, being almoſt three fathoms high, and upwards of thirty fathoms in diameter. Some ſmaller hillocks were alſo perceptible in its vicinity. We likewiſe remarked ſeveral gigantic ſepulchral monuments along the Kuma, one of which was even larger than that abovementioned.

On the variegated blackiſh ſoil of the higher part of the ſteppe, the *Colchicum autumnale* was abundant and in bloſſom. All the plants here, notwithſtanding the drought of the ſeaſon, grew to an extraordinary height. Thoſe which moſt engaged my

my attention, in conſequence of their gigantic ſize, were the *Ceratocarpus arenarius*, *Statice ſcoparia*, *Salſola ſedoides*, *Polycnemum dichotomum*, *Atriplex patula*, and the leſs numerous *Atriplex laciniata*. Several ſpecies of the *Chenopodium* were, on the contrary, numerous; while various marine plants, common on the ſteppes of the Caſpian Sea, ſuch as the *Salſola baccifera* *, *roſacea*, *hyſſopifolia*, *brachiata*, and *fruticoſa*, *Anabaſis aphylla*, and *Atriplex Halimo affinis*, were no longer viſible in this neighbourhood.

The higher ſteppe now formed a ſteep and conſiderable ridge, which preſented an uneven ſurface towards the extenſive low country. From this ſteppe we obſerved a ſtill higher prominence beyond the river Kuma. This ridge, like the high country along the river Sarpa, forms a bank of different degrees of ſteepneſs, and of an uniform height; it extends into the low country up the river.

The bank begins immediately above the ſmall village Volodimerovka, where it forms a high angle near the river, and extends, with ſeveral inlets, to the South of the ſteppe towards Moſdok: it is interſected by the deep valleys of Kura and Podkura. The upper part of the high country forms a plain, and is the firſt riſing ground towards the promontory of the Caucaſus, though diſtant upwards of one hundred verſts. It appears to have formerly been the ſhore of the old ſtrait, and probably the ancient mouth of the Kuma was ſituated higher in this region. Several plants were ſufficiently numerous

* *The Anabaſis foliosa, of Linnæus*, is a common plant on the ſteppes; it is ſomewhat impregnated with ſalt from the Caſpian Sea, is found on all the roads, and is proper for the manufacture of ſoda.

near

near the Caucaſus, ſuch as the *Crambe orientalis*, *Rhamnus lycioides*, *Crocus vernus*, and *Salvia æthiops*; but they have not yet extended farther than the bank of this high ridge, and are not indigenous in the northern and eaſtern parts of this country.

At the diſtance of ſeven verſts from the large village of Madſhary, or Kavkaſkoi Uſvat, which belongs to a nobleman, we obſerved in a moſt agreeable ſituation, on the bank of the Kuma, a farm eſtabliſhed for rearing cattle. The bank on this ſide exhibited ſeveral chaſms formed by the torrents of rain-water; and the wood of the low country, which had grown to a good ſize, preſented a charming landſcape in the open plain. We now approached the fire which we had diſcovered on the ſteppe the preceding evening, or rather, the continued hurricane from the N. W. impelled it directly towards us, cloſe to the bank of the river and the collateral highway. We were therefore obliged, as the moſt prudent ſtep in ſuch an exigence, to penetrate upwards of a verſt through the thick ſuffocating ſmoke, mingled with aſhes driven by the wind, and alſo through the almoſt inſupportable heat of the flame: thus we eſcaped at full gallop, though not without danger. Our Turcoman guides, who were well mounted, gave us the moſt effectual aſſiſtance, by driving our horſes, and drawing the carriages with ropes. By theſe means, towards the evening we reached the village of Uſvat, which lay beyond the reach of the fire. We were much gratified with our hoſpitable reception in the commodious and well-built manor-houſe, which afforded us an aſylum againſt the dreadful tempeſt. The convenience of this reſidence; the examination of the much diverſified country; the various repairs of our carriages; and the expected return of an expreſs whom

Plan
of
Greater or Upper
MADSHARY

whom I had diſpatched to Naur, induced me to ſtay here for ſeveral days.

The Kuma in this place flows in romantic meanders, which, ſometimes on the one ſide, and ſometimes on the other, form conſiderable promontories, called Kuti. Some of theſe are covered with ruſhes, while others conſiſt of dry paſturage, and meadows rich in herbage, with ſeveral thickets of blackthorn and tamariſks. Along the river there are ſeveral high foreſts, and many coppices among the trees, of which the wild apple, the wild poplar, and thorny pear-tree are moſt conſpicuous. Wild vines were found intertwined in different places; they produced black grapes, about the ſize of the common pea, which were very delicious, and contained proportionally large ſtones. Farther on, as we deſcended, we obſerved only a few coppices along the banks of the river; but below Ternovka, where the good arable land commences, they were not diſcoverable.

Near Ternovka the Kuma divides itſelf into two branches; the principal current, which is about fifteen fathoms broad, is interrupted by a mill-dam, and ſupplies with water a mill belonging to the lord of the manor; while the water of the other branch, which runs for ten verſts in a ſtraiter direction, turns two mills belonging to the boors. The river here, and to the extent of fifteen verſts farther, runs with a ſtrong current; it then loſes itſelf in bays and moraſſes, overgrown with ſedge; but towards Volodimerovka it again grows narrower, and flows in a regular bed for about fifteen verſts, where, on its left bank, in the low country, we obſerved ſeveral long lakes; it then branches into other lakes, and ſedgy marſhes, after which

it again appears in different places, with a gliding current, to the extent of fifteen verſts farther, till it reaches the Kumſkoi Kultuk of the Caſpian Sea, and at length totally diſappears under banks of drift-ſand. Nevertheleſs, the ſweet water oozing through the ſand in Kultuk is ſo abundant, that the cattle of the iſle have a conſtant ſupply.

The river Kuma riſes here, in ſpring, about four arſhines, but does not overflow and inundate the low country, in which ſome traces of its ancient collateral channels are ſtill perceptible. The level ſteppe, which extends as far as the eye can reach, is in this place upwards of three fathoms higher than the adjacent country. This conſiderable elevation begins at Terny, and has a ſteep ridge, which is interſected with ſeveral ſmall dells. The elevated ſteppe is interſperſed with numerous antique, vaulted ſepulchral hills; and below the village there was formerly an ancient Tartarian houſe of worſhip, in a ſquare form, built of bricks, which, however, is now entirely demoliſhed. I alſo remarked here, that the mortar was mixed with coarſely powdered charcoal and white quicklime; but it was porous, and not ſo compact as that I had obſerved at Tzarevy Pody, on the banks of the Akhtouba. This ruin is called Niſhnye Madſhary, a name which it has in common with the village.

Beyond the Kuma the country is diverſified with ſmall hills, and riſes with a ſteep aſcent from the adjacent bank: this tract is almoſt as high as that of the Sarpa; it conſiſts of a loamy ſoil, without any ſtrata of ſtone, and its ſurface is a blackiſh earth, covered with verdure. Nearly oppoſite the village, the high country projects in a lofty hill towards the river, and

then

then retreats ſomewhat farther from the ſtream, towards Volodimerovka; but it progreſſively becomes higher along the bank, till it communicates with the promontory of the Beſhtau. On the principal eminences of this high tract are ſepulchral hillocks of various ſizes, which probably have ſerved as poſts for centinels. The *Rhamnus lycioides*, or Kuſtovnick, grew here in general with very low and ſpreading branches; and we alſo diſcovered the true *Crambe orientalis*, which is not to be found in the vicinity of the Volga, though that country produces the *Crambe Tatarica*. Beſides theſe we obſerved the *Statice Coriaria*, or Karamyk, wild thyme, and ſeveral very beautiful plants, which were almoſt indiſcernible, being in a great meaſure parched. In the environs of Uſvat were, the *Salvia æthiops*, *Centaurea ſicula*, *Phyſalis alkekengi*, *Solanum nigrum*, *Stramonium*, *Chryſocome biflora*, *Alcea ficifolia*, as well as the *Colchicum*, and in the village itſelf the *Heliotropium Europæum*, *Zygophyllum*, *Harmala*, and ſlender *Alhagi*; plants which the cattle never touch. They were numerous, ſome in bloſſom, and generally diſtinguiſhable by their ſtalks.

In this country there is abundance of game. The majeſtic ſtag deſcends from the mountains, and the Saiga comes hither from the ſteppe: there is alſo a great variety of hares and other ſmall quadrupeds. The *Mus Jaculus* formerly infeſted this place in ſuch numbers, that they devoured the unripe corn. In autumn, eſpecially, this country abounds with wild-fowl. Buſtards, as well as other birds of paſſage, come hither in numerous flights, and remain till the approach of winter. The nobleſt of the feathered tribe here is the pheaſant; this delicate bird appears firſt in the foreſts adjacent to the Kuma, and

afterwards more numerouſly in the thickets and ſedges of the low country. The places overſpread with reeds adjacent to the Terek and the Kuban, along the ſhores of the Caſpian Sea, and the whole tract of the Caucaſus, may be ſaid to be the native country of the pheaſant. As it often happens that theſe birds impreſs their footſteps in the thickets which they frequent, they are caught by gins, which are repreſented in the Vignette No. 5. The gin is faſtened to an elaſtic rod (*a*), which is bent at the lower end; it is likewiſe tied round a ſmall piece of wood (*b*), which, ſtrained by the rod and ſnare, preſſes a ſtick placed tranſverſely (*cc*) upon a bow fixed in the ground, ſo that it juſt keeps it in balance. On this tranſverſe piece of wood ſeveral other ſmaller pieces reſt (*c*), placed acroſs the path on which the ſnare is ſpread. As ſoon as the pheaſant ſteps on one of theſe ſticks, the ſquare piece is preſſed down by the weight of the bird; the ſmall piece of wood (*b*) gives way; the elaſtic rod (*a*) ſprings up, inſtantly draws the gin around the legs of the bird, and lifts it into the air, ſo that it cannot poſſibly diſentangle itſelf.

The inlets of the river contain ſhads, ſmall carp, pike, and other ſmaller fiſh of different kinds: in ſome lakes of the low country there are ſmall tench, and carouſſes, which are beautifully ſpeckled, and very delicious.

Malye Madſhary, or as it has ſince been called, Kavkaſkoi Uſvat, is, next to Volodimerovka, the firſt village eſtabliſhed on the banks of the Kuma, in this beautiful and fertile country, which only twelve years ago was a deſert. The Malo-Ruſſians, and other wandering hordes, laid the firſt foundation of a ſettlement, and ſubmitted to be enrolled as vaſſals. Attracted by the beauty

beauty of the place, and the abundance of good arable land and paſturage, ſeveral individuals, as well married as ſingle, have gradually ſettled here; hence the village is now increaſed to one hundred and ſixty farm-houſes, and inhabited by ſix hundred perſons, from the age of fifteen to ſixty years, who are ſubject to a poll-tax. Excluſive of theſe, there are about two hundred unmarried men, who have received permiſſion to work at the fiſheries. This village belongs to the Princeſs VASEMSKOI, who, at the requeſt of the peaſants, has appointed a prieſt of Georgian deſcent, born at Kiſlar. She has alſo cauſed a ſmall church to be erected of wood, and the villagers, in conſequence of their agreeable ſituation, in a fertile country, are now become peaceable vaſſals. The village is built in regular ſtreets; the cottages are indeed ſmall, but well conſtructed of wood, plaſtered over with clay. A good manor-houſe, with a garden, affords a convenient reſting-place to the traveller, who viſits this deſert country. At the weſtern part of the village, on a declining promontory, round which the Kuma winds in a conſiderable angle, the excellent economiſt of this place, M. TOMASHEFSKY, has cleared the ground of bruſh-wood and ſedge, and has begun to plant a vineyard, orchard, and mulberry-garden, which promiſe to be very beneficial. This ingenious gentleman is a native of Poland, and has had the ſuperintendance of the village for the laſt ſix years. The only vines planted here, are thoſe of the Don. They produce black grapes, which ripen early, and, together with the white Kyſhmiſh without ſtones, are the moſt uſeful ſpecies of that fruit cultivated in theſe regions. The vines, without being watered, grow luxuriantly in a clayey ſoil, which is only from one to two fathoms above the

the level of the river; they are allowed to grow in long branches, for the conſtruction of arbours. A tolerable good muſt had already been preſſed from the grapes of this vineyard. The mulberry-trees thrive as quickly as weeds, ſo that thoſe in the plantations of four years growth, have trunks thicker than a man's arm, are a fathom and a half high, and their branches ſpread to a conſiderable extent. Peach and plum-trees grow here in the open fields, without being grafted, or laid out in eſpaliers. In the month of December, they are covered with a little ſtraw, which is removed early in February.

M. Tomaſheffky has alſo made an attempt to cultivate ſilk. It was intended to devote a particular part of the village to ſuch an eſtabliſhment for the emigrants from Georgia, who might conſiderably increaſe this branch of economy. There could be as much ſilk produced along the borders of the Terek, the Kuma, and in Taurida, as would ſupply Ruſſia with a ſufficiency for home conſumption. It would, however, be abſolutely neceſſary to employ coloniſts from Aſia, Greece, Dalmatia, and Italy; as the Ruſſians can by no means be induced to engage in this profitable branch of induſtry. All the ſilk which is now produced on the banks of the Terek, and in Aſtrakhan, is cultivated by Georgians, Armenians, and a few Kozaks, who have in this reſpect overcome the popular prejudice.

The principal employment of the Ruſſian peaſant, in this country, is agriculture; which is facilitated by the uncommon fertility of the ſoil. An uncultivated field, covered with a thick turf, is ploughed in ſpring, ſown with millet, and harrowed.

rowed. In the ſecond year, this ground is again broken up with a heavy rake, called Ralo, which is drawn by oxen, as repreſented in the twelfth Plate, and afterwards ſown with wheat. The third year it is ſown with rye or barley, which is harrowed in by the Ralo, and the fourth year it is deeply ploughed for winter wheat. After this ſucceſſion of crops, the ſoil is allowed to lie fallow for four years, and upwards, till the herbage that overſpreads its ſurface affords ſufficient vegetable mould. Wheat yields twelve-fold and upwards, and rye eight-fold on this argillaceous, black ſoil, which is intermixed with marl. The winter wheat ſown in November ripens towards Whitſuntide, and the ſummer wheat, which is put into the ground as early as February, is ripe by the end of June, or beginning of July. An experiment has been made to cultivate plain barley, and Engliſh as well as black oats. The ripe grain is trodden out in the open fields by horſes hired of the Tartars, and the ſtraw remains in heaps till the next conflagration of the ſteppe.

It will not be unintereſting to take a general view of the colonies which have been eſtabliſhed in the environs of the Caucaſus, ſince the year 1781, with an intention to people the frontiers, and ſupport the troops ſtationed there for protection. Theſe new colonies are ſettled in detached villages, and the coloniſts have been obliged to build ſmall fortifications, and in ſeveral places even to ſurround their houſes with chevaux de friſe, for ſecurity againſt the irruptions of the mountain hordes. It is worthy of remark, however, that moſt of theſe villages, in conſequence of diſeaſe, deſertion, and other cauſes, have loſt

a con-

a conſiderable number of their original inhabitants. At length they have attained a permanent ſtate of proſperity, which affords them the proſpect of an increaſing population, while they enjoy perfect ſecurity againſt accidental calamities, except thoſe of war. From the annexed ſpecification, the reader will learn the following particulars relative to theſe eſtabliſhments. The firſt number indicates the year in which the village was built; the ſecond, the original, and the third, the preſent number of male inhabitants.

I. The following new villages are ſituated along the banks of the Kuma, beginning below and proceeding towards its ſource.

Terny or Ternovka, in 1791, on the left bank of the river.

Volodimerovka in 1786—36—on the right bank, belonging to General Savelief;

Kavkaſkoi Uſvat, in 1786,—852—the property of the Princeſs Vaſemſkoi;

Pokoinoi, in 1786,—1013—361;

Bolſhye Madſhary, in 1786—183—being German coloniſts, who have ſeparated, and now inhabit the left bank of the river;

Proſkovea, in 1785,—938—584 on the right bank;

Privolnoe, or Maſlof Kut, in 1785—411—411;

Nino*, or Frolofſkoi Kut, in 1786,—1233—579, among whom there are about one hundred and fifty gypſies.

Novogrigorievkoe, or Fedorovka, in 1781—957—810;

Otkaſnoe, in 1786—860—302 on the right;

Sloboda Alexandrovka, in 1781—448—448, on the right, conſiſting of diſbanded ſoldiers;

* This name was given to the village, by Count PAUL POTEMKIN, in honour of NINO, the beautiful daughter of the Tzar HERACLIUS of Georgia.

The

The village of Alexandrovka, in 1788—180, belonging to Count Voronzov;

Novoſavedennœ, in 1785—1176—622;
Obilnaya, in 1785—1341—846;
Malaya Podgornaya, Bolſhaya Podgornaya } 1786—1032—733;
} on the left, like the following.

Sloboda Alexandria, in 1784—835—654;

Sloboda Ivanovka, or Kryukin Brod, in 1791—100, belonging to Count Tcherniſhef.

Near the adjacent rivulets, but partly again abandoned.

Naideno,
Blagodarnaya, in 1787—131—105;
Byeloi rutſhei, in 1787—36;
Medveditza, in 1785—1123—767;
Vyſotzkœ, in 1785—935—605;
} on the banks of the Bibala.

Tſhernoi Les, in 1789—356—264,
Novoſeltzy, in 1785—1205—789;
} on the banks of the Tonguſly.

Kalinovka, in 1785—1517—999, on an adjacent brook which falls into the Tonguſly.

Sabla, in 1788—194—166, on the brook Karamyk;

Neſlobnoi, in 1786—183—118, near the rivulet Solka;

Ekaterinovka, in 1776—89—on the ſame brook, belonging to Colonel Rebinder.

II. On the banks of the Kalaus.

Petroffſkoe, in 1786—136—96;

Maryeno, in 1785—999—630;

Nadeſhda, in 1785—1698—1163;

Sergieffſkœ, in 1788—263—244;

III. On the banks of the rivulet Kurai, or Kura.

Kurſkœ, in 1786—261—164;

Spaſkœ, in 1786—257—87*;

Raſtavanovka, belonging to a nobleman of the ſame name;

Goſudarſtvennaya, in 1786—607—312.

IV. On the banks of the rivers Malk and Terek.

Alexandrovka, in 1784—52, belonging to Count Beſborodko;

Pavlodolſkoe, in 1784—206—138, on the banks of the Yeraſhta, a collateral branch of the Terek.

Pervorodnœ, in 1786—38—38, on the Terek;

Bliſkoi, in 1787—61—43, on the river Malk, where a great number of planks are ſawn;

Prokhladnœ, in 1784—545—308;

Soldatſkaya Malka, in 1787—274—248.

V. Near the rivulet Taſhla, which flows into the Yegorlyk.

Pelagiada, in 1785—1450—865;

Mikhailoffkœ, in 1785—1469—964;

Donſkaya Balka, in 1786—534—300.

M. De Rading, Director of Economy at Aſtrakhan, preſented me with a liſt which contained an account of the quantity of grain ſown, and its produce in theſe colonies, in the year 1792. It appears that there were ſown, 15,000 Ruſſian Tchetverts of rye, 13,000 of wheat, 8400 of barley, 2300 of millet, 14,950 of oats, and 284 of buckwheat. Theſe different ſpecies of grain produced, upon an average, 94,400 tchetverts of rye, 86,400 of wheat, 45,544 of barley, 28,300 of millet, 75,700

* The brackiſh water of the Kurai is conſidered as extremely unwholeſome, and this is the principal cauſe that the villages in its vicinity have ſuffered ſo much from diſeaſe. The wild fruits may alſo have contributed to produce diſorders.

of

of oats, and 1200 of buckwheat; to which ſhould be added 306 tchetverts of peas, that produced 1533; 790 tchetverts of hemp, that yielded 3140; and 757 tchetverts of lintſeed, which were productive of 2160.

It is evident from this ſtatement, that the inhabitants of the villages recently eſtabliſhed along the frontiers of the Caucaſus, cultivate grain ſufficient for the ſupport of the troops quartered in this region. Nevertheleſs, the victualling commiſſaries of the army have this year permitted, for the firſt time, 15,000 tchetverts of grain to be purchaſed at the rate of two rubles per tchetvert; but hitherto the Crown has been obliged to procure grain from the diſtrict of Kharkov, and other diſtant governments, at the rate of four rubles and a half the tchetvert. By ſuch abuſes, however, the peaſant has been much diſcouraged in his agricultural purſuits; becauſe he is at a loſs where to find a market for his grain, particularly for rye. The colonels of cavalry purchaſe oats at the rate of a ruble, and a ruble and a half the tchetvert. Wheat amply repays the expences of conveying it to the adjacent towns, and even as far as Aſtrakhan. Nay, the Greek merchants of Taganrog began, in the year 1793, to purchaſe the wheat of this country at two rubles and a half, and conveyed it to their harbour, for exportation, at a ruble and a half the tchetvert. Perhaps a better channel might be found for the exportation of the agricultural produce of this country, if enterprizing merchants would erect magazines for wheat, on the banks of the Kuban, in order to tranſport this valuable grain during the ſpring tides, by flat-bottomed veſſels, to the iſle of Taman, and the village of Kertſh. Every reflecting perſon will, from the account here given, eaſily perceive the great

importance of agriculture in this country, and how much it deſerves to be encouraged, eſpecially for the ſupport of troops ſtationed along the Lines of the Caucaſus. Beſides, as ſeveral peaſants have begun to plant vineyards, on account of the indifferent ſale of the corn, which fills their granaries, it is probable that many uſeful hands will be withdrawn from the plough. It would, however, be more beneficial to the State, if the boors would direct their attention to the cultivation of mulberry trees, and the conſequent rearing of ſilkworms; an employment which is perfectly conſiſtent with agriculture, and promiſes many advantages to the huſbandman. The manner of rearing mulberry trees from ſeed is very ſimple, as it requires nothing more than to cover a rough cord of hemp with bruiſed ripe mulberries, and to bury them, in ſmall furrows made in a moiſt ſoil. From theſe ſeeds the young plants ſpring up ſo quickly and abundantly, that in the ſecond year they are fit to be tranſplanted into trenches ſomewhat deeper, at a diſtance from each other: and they thrive in almoſt every kind of ſoil.

On the 4th of September, in the afternoon, I left Uſvat, and continued my journey. The border of the high ſteppe is covered with ſeveral very large, and ſmall, ſepulchral hillocks, both above and below the village. A verſt and a half beyond Uſvat, there are ſimilar monuments on the ſpot where the Tartar-houſe of prayer beforementioned was formerly ſituated.

The ſteppe perceptibly riſes towards the Sukhaya, or dry Bibala, pronounced by the Ruſſians, Buivalla. This ſaline ditch was at preſent in a dry ſtate; it extends ten verſts from the ſteppe,

ſteppe, and carries off the ſnow-water in ſpring. In the higher parts of the ſteppe, we found wells made by the Kalmuks. At this place there formerly ſtood two Tartar-houſes of prayer, which the new coloniſts have entirely demoliſhed, and carried off the bricks. The canal above deſcribed is eight verſts diſtant from Uſvat, and ſeven from Pokoinoi Selo, where we fixed our quarters for the night: it extends to the Kuma, and formerly was the boundary between theſe two villages.—Beyond the Kuma, the high country was uniformly more elevated than the ſteppe on this ſide of the river: as we approached Byvalla, the heights conſiderably declined along a collateral branch of that river, above Pokoinoi: the country was interſected by trenches formed by the rain-water, and the ſteppe gradually declined towards the meadows.

Pokoinoi is a large parochial village, which has been peopled by Ruſſian coloniſts from ſeveral parts of the Empire: their original number amounted to 1100 males, but it is now reduced to three hundred and ſixty-one. In conſequence of the dryneſs of the adjacent ſteppe, and the increaſing number of mountain mice which incline to burrow in a dry ſoil, and are extremely pernicious to grain, moſt of the peaſants have been induced to cultivate the lands beyond their appointed limits. Theſe lands lie principally beyond the Mokraya Byvalla, on the low and fertile plain of the great Madſhary; and that arable tract which was formerly given to a German colony, is now uninhabited.—Near Pokoinoi, on the river Kuma, there is a wretched floating mill built on hollow beams, and belonging to a company of five peaſants: there is alſo a bridge equally indifferent. In the low buſhy country, on the oppoſite ſide of the

the river, we ſaw ſeveral wild vines with ripe grapes, the water elder, and great numbers of the *Dypſacus ſylveſtris*, but which were now withered. The vine grows along the ſurface of the ground, and alſo clings to trees and ſhrubs: it frequently has trunks as thick as a man's arm, and often ſhoots out into ſtraight and ſlender branches above ten fathoms long. In this place the current of the Kuma though rapid, is very muddy and turbid; and its collateral branch runs cloſe to the high country, on the oppoſite ſide. Near Uſvat, however, the river becomes more limpid, in conſequence of paſſing over ruſhes, where it depoſits its mire.

We left Privolnœ on the 5th of September, and ſoon arrived at an extenſive low country, covered with reeds, but now in a dry ſtate. It is called Mokraya, or the wet Byvalla, and beyond the road it forms a marſhy lake, along the right bank of which there are ſeveral extenſive ſpots covered with a white ſaline efflorescence. The ſource of this lake is at a conſiderable diſtance towards the North, and about ſeven verſts from its origin it is ſkirted with bruſhwood. Towards the lower part it becomes dry in ſummer, and the water of its pools then acquires a brackiſh and bitter taſte. This marſhy lake, which lies at an equal diſtance of ſixty verſts from the Kuma and the fortreſs of Severnoi, contains ſweet water at the upper part where ſprings flow into it; but that in its lower part is bitter and ſaline. The ſhores of this extenſive lake are variegated with ſedgy marſhes, numerous meadows, and arable land of great fertility.

We travelled three verſts and a half over a valley richly wooded and adorned with numerous vines; we then croſſed ſeveral

ſeveral ditches of water, paſſed a few ſepulchral hillocks, and aſcended the high ſteppe, which runs in an obtuſe angle between the low tracts of the Byvalla and Kuma. Here the antique Tartar buildings that ſtill remain, preſent themſelves to the eye, and are known by the names of Bolſhye or Verkhnie, the greater or upper Madſhary.

In the year 1780, the number of theſe buildings, part of which were ſtanding entire, and others fallen to ruin, amounted to thirty-two; and we learned that ſix edifices ſimilar to towers were formerly to be ſeen in this place. Since villages and forts have been eſtabliſhed in this neighbourhood, the excellent bricks of thoſe buildings have been removed, inſomuch that ſcarcely a trace of them remains. According to the beſt opinion that can be formed, from the veſtiges of theſe ruins and their foundations, they have formerly ſtood in rows; a circumſtance that has induced the ignorant to ſuppoſe they were the ſtreets of a large town. But, upon cloſe inveſtigation, it appears that this place was a famous cemetry appropriated to perſons of diſtinction; for ſimilar veſtiges are diſcoverable in the whole country of the Kuma, in all directions, and on every eminence of both its banks, eſpecially on the right or ſouthern ſide, which is as it were covered with ſepulchral hills. This proves the partiality of the ancient wandering tribes to this country, and even in modern times the Kalmuks annually drive their cattle hither, for winter paſturage.

The buildings which remain entire, are only ſepulchral moſques of a Mahometan nation, perhaps of Tartar origin. And if we were to judge merely from the traditional name of Madſhar, given to this place, it probably has been a former

reſidence

reſidence of the Hungarians or Kumanians. This conjecture may likewiſe be applied to thoſe ruins of brick buildings which are on the high mountains near the great Dſhindſhik, by the Circaſſians denominated Madſhar Yuna, or houſes of the Madſharians. There is no foundation for believing what is related of this ſuppoſed city, that its inhabitants have been expelled by great numbers of the large tarantula, or *Phalangium araneodes*, from which traditionary account the rivulet Byvalla has received its name; *By*, being the Tartar word for the tarantula, and *valla*, ſignifying bad or evil. I have never conſidered this country as the native ſoil of that inſect; for, notwithſtanding my diligent reſearches, I have not been able to diſcover a ſingle tarantula in thoſe regions.

Four chapels, or mauſolea, of which a repreſentation is given in the twelfth plate, are in a line from Eaſt to Weſt, on the high ſteppe; and there have been three principal rows, beſides the ſepulchral hillocks, tomb-ſtones and other ruins that lie ſcattered around, without any apparent order.

The building, ſituated two hundred fathoms from the banks of the Kuma, and about two hundred and fifty diſtant from the Byvalla, is covered with the climbing vine, and differs from the three others in architecture, ſize, and the form of its cupola, as it is faithfully repreſented in the Vignette No. 6. This ſtructure is in a ſtate of decay, both on its projecting eaſtern front, and the ſame ſide of its cupola; and as its walls have been cemented with clay inſtead of lime, which was only uſed for the foundation, it will probably ſoon become a heap of ruins. It is thirty-ſix Engliſh feet long, and twenty-five broad. On its caſtern ſide, there is a heap of rubbiſh, and a foundation

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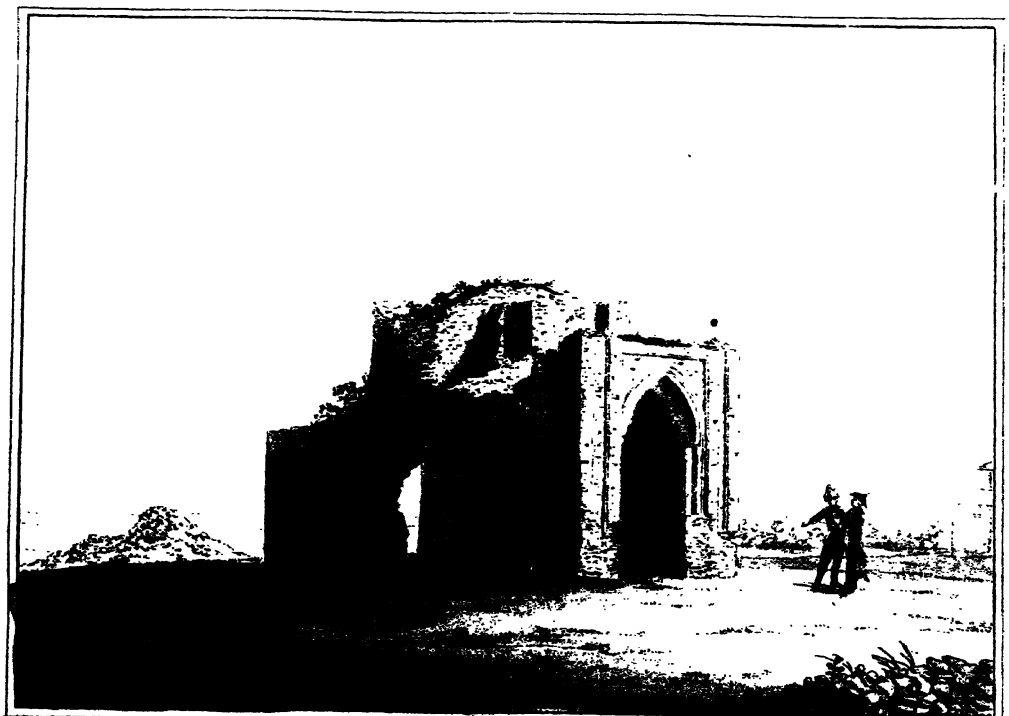


foundation probably of a tower, or Miſger, in the ſame line with the portico, which, in all theſe buildings, is facing the South. A ſimilar foundation of ſixteen feet ſquare is ſituated in the middle, between this and another building, which is thirty-five feet long, and twenty-ſive feet broad. It is diſtant from the former about ſifty-ſeven paces, and has a round dome, a form generally adopted by the Tartars in the architecture of their ſepulchral chapels; an accurate repreſentation of which is given in the thirteenth Plate. This ſtructure has apertures inſtead of windows in the eaſtern and weſtern walls, but none on its northern ſide. The laſt-deſcribed chapel is ſituated nearly parallel to, and in front of the former.

At the diſtance of eighteen paces from this building, which is ſtill entire, though the walls are only cemented with clay, we obſerved a foundation of about fifteen ſquare feet; and ten paces farther, in the ſame direction, there was another foundation, thirty-ſix feet long, and twenty-ſix broad. Beyond theſe, about ninety-two paces towards the North, and ſomewhat out of the regular line, we diſcovered the ruins of a conical ſtructure ſixty-one paces in circumference.

In the firſt deſcribed row of theſe buildings, at the diſtance of exactly one hundred paces, there are two other buildings perfectly entire, which are conſtructed ſimilar to that of the ſecond range. The walls of the moſt eaſtern ſtructure are built with lime, and conſequently in a more perfect ſtate than any of the others: the whole is twenty-ſix feet long, and twenty-four broad; with a projecting periſtyle eight feet high, ornamented on each ſide with an octagonal column. The ſecond in the ſame line, is ſeventy-ſive paces diſtant from the firſt: it is

twenty-eight feet in the cube, with a veſtibule eight feet high, adorned with two octagonal columns beſide the periſtyle, and is behind twenty-ſix feet broad.

The exterior form of theſe buildings may be diſtinctly obſerved in the Plate; I ſhall therefore only ſpeak of their interior ſtructure. In their capacious ſouthern entrance, they have an iſle on each ſide with a vaulted niche, and a narrower entrance into the nave. On three of the ſides, and in the four corners, they have flat vaulted niches which ſupport the cupola, and are conſtructed ſo that the whole forms an octagon. In the eaſtern and ſome of the weſtern niches, I remarked ſmall apertures as ſubſtitutes for windows; and the ſoil had been dug up in all the niches, by perſons in ſearch of treaſure. The vaults of thoſe built with clay and bricks begin to decay, and it is probable that in a few years ſcarcely any remains of them will be ſeen.

Five paces from the laſt-mentioned building, we obſerved traces of another circular ſtructure, with two projecting walls on its ſouthern ſide, which were originally deſigned for the entrance. Two hundred and ten paces diſtant, in a weſtern direction, we diſcovered the foundations of two ſquare ſtructures, which were only ſeven paces from each other: one of theſe formed a ſquare of twelve, and the other of eight arſhines, the latter of which terminated this line.

Farther towards the South, we met with another line of ruins almoſt parallel with the former, and diſtant forty-ſix paces. Exactly oppoſite to the moſt weſtern of the preceding lines, we obſerved ſome heaps of rubbiſh, which were the remains of a large octagonal ſtructure, twenty-ſeven feet in diameter.

Eight

Eight paces from this ſpot, and in a more eaſtern direction, we ſaw another round but ſmaller heap of bricks, ſcarcely diſtinguiſhable, while towards the Weſt we found ſeveral heaps of ruins, from which a quantity of bricks had been dug, and were left ſtanding in piles. The largeſt building in this row is three hundred paces weſtward of the firſt pile of fragments; among the oblong and ſquare bricks of which we diſcovered ſeveral blue and greeniſh glazed fragments. In imitation of theſe ancient Tartar bricks, there are to this day a ſimilar kind uſed for chamber ovens, which are glazed on one ſide, and made at Tſherkaſk, on the banks of the Don.

The third line, which has not a ſingle building entire, is ſituated on the oppoſite ſide, at a conſiderable diſtance, and nearer the border of the ſedgy low country, that is covered with reeds, and traverſed by the Byvalla. At this place we obſerved the foundations of ſquare buildings, generally two together; and we ſometimes ſaw ſquare heaps of large bricks, and ruins which appeared to have belonged to the vaulted ſepulchral hillocks underneath. Two of theſe very large hillocks are towards the N. W. of the buildings which remain ſtanding, and one of which is ſurrounded by a flat rampart of earth, without a foſſe. Farther to the N. E., and adjacent to the valley, we ſaw two ſimilar heaps of ruins, environed by a common mound, which extended towards the Weſt, in the form of a court-yard. We often met with ſimilar encloſures near the principal tombs, on the banks of the Volga; and I have not the leaſt doubt that all theſe remains of antiquity formerly belonged to the ſame horde. Beſides theſe, there are two other

ſepulchral hillocks, as well as two ſquare foundations ſituated collaterally, and a variety of ruins ſcattered around.

On the plain, between the buildings and the ruins, we alſo obſerved ſeveral excavated tomb-ſtones, from ſix to eight feet long, and of an angular form. They were hewn out of conglomerate maſſes of lime or ſand-ſtone, ſimilar to thoſe found on the tombs of the Greeks and Jews, and were placed horizontally, without any inſcription.

Towards the South, there were likewiſe ſcattered ſeveral ſepulchral hills, eſpecially ſome of a large ſize, ſituated a few verſts diſtant from the buildings before deſcribed, oppoſite the village Proſkovea, beyond the Kuma. Theſe monuments are near the place where the German coloniſts had formerly ſettled, but there is now no building to be ſeen, except a redoubt lately erected, and now abandoned.

We alſo obſerved on the plain which contained the two large monuments abovementioned, ſome ſtunted mulberry-trees, or the *Morus tatarica*, of the wild indigenous ſpecies; and the vine, which crept along the ſides of ſeveral cavities. We alſo frequently met with the large ſea colewort, or *Crambe orientalis*, and the gigantic plants of the *Zygophyllum*, and *Statice Coriaria*, which flouriſhed in every direction. The declivity towards the low country of the Kuma, is in ſome places covered with the vine like a carpet; and in ſpots adorned with wood, it extended its beautiful branches and tendrils from one tree to another.

The ſoil, in the neighbourhood of Madſhary, is richly impregnated with nitre, to a conſiderable extent. The village Proſkovea is ſituated on the oppoſite ſide, at ſome diſtance from the

the Kuma, on the border of a long and narrow lake in the large valley, which appears to have been the ancient bed of a river, and lies contiguous to the high country. But the village on this ſide, appropriated to the German coloniſts who were ſent from the government of Saratof, is entirely abandoned. Theſe ſettlers lived here upwards of a twelve-month in ſubterraneous huts; but from the unwholeſomeneſs of their ſituation they loſt part of their number, which originally amounted to one hundred and eighty-three perſons.

The ſteppe continued viſibly to riſe, and after a journey of fifteen verſts, we arrived at the rivulet called Donguſly, or hog's water, which was entirely dry, except ſome deep marſhes. The Ruſſian peaſants have changed the name of this rivulet to Tomuſlovka. It riſes at the foot of the mountainous country which extends towards the Weſt into the ſteppe, between the fort of Alexandrovkaya and Severnaya. This tract is deſtitute of wood, except its upper part, where the trees are but thinly ſcattered, and of an inconſiderable ſize. Towards the ſource of the Donguſly there are horizontal ſtrata of lime-ſtone, ſimilar to that uſed at Madſhary for tomb-ſtones. A ſhort diſtance from its confluence with the Kuma, M. BOLDYREFSKY has begun to build a ſmall village on his eſtate, and has collected a number of ſtragglers for that purpoſe.—Seven verſts from Tomuſlovka, we arrived at one of the windings of the Kuma, which encloſed an extremely fertile plain called Maſslof-Kuut. The large parochial village of Privolnœ is built on this beautiful plain which borders the left bank of the Kuma. About half way to the village, the riſing ground changes

to

to a black and fertile ſoil; and on the ſteppe, which was burnt to a conſiderable extent, we ſaw a number of *Colchicum autumnale* in bloſſom.

In the Kumanian vallies of this rich woody country, the peaſants dig up a quantity of wild madder. Great fields of that root might be cultivated with facility in all the adjacent vallies, by tranſplanting it at proper diſtances. Several peaſants in theſe regions, part of whom are Ruſſians, and others Malo Ruſſians, have attempted, near their farms, to cultivate the vine and eſtabliſh orchards in the valley, beyond the river. The fertility of the ſoil has improved the ſituation of theſe ſettlers; but their general complaint is, that they have no market for their abundant grain.—The late Governor, Count PAUL POTEMKIN, formerly kept his ſtuds near this village, and employed the boors in haymaking and other branches of huſbandry.—They have two floating mills on the Kuma, and a decent church. Beſides, the abovementioned vallies produce ſeveral mulberry-trees, wild hops, and vines which form the moſt delightful natural arbours. The *Acer tataricum*, and *Eupatorium cannabinum*, preſented themſelves to my view for the firſt time near the Kuma.

September 5th. Eight verſts farther, between the village Privolnœ and Frolof-Kuut, or Nino, the latter of which is built in another angle formed by the Kuma, the ſteppe riſes into a bank, which in a ſtriking manner exhibits traces of the high ſhore of the ancient Sea. This elevated ground forms the bank of the river, and is upwards of two fathoms above its current: the *Colchicum*, which we found growing throughout the

the high ſteppe, was not to be ſeen on this bank. The uniform ſurface of the ſteppe became imperceptibly higher, ſo that near the village Koſſoi brod, ſituated ſome verſts farther, the bank of the Kuma was three fathoms high—From Madſhary we firſt deſcried the ſnowy mountains of the Caucaſus. During the whole of this day's journey they appeared particularly diſtinct to us, on account of the ſerenity of the air, and exhibited in their train a moſt magnificent ſpectacle. Beſides the lofty and coloſſal Elburus *, which towered above all the others, and as it were guarded the whole chain on its weſtern extremity, there were four principal groups crowned with ſnow, which were particularly conſpicuous by their irregular ſummits. The black mountains, or, as they are uſually called here, Tſhernye Gory, appeared at this diſtance like a regular wall, which connected the ſnowy mountains that roſe above it, while it formed their baſis. The height of theſe black mountains is apparently equal to that of the Beſhtau, though the latter is one hundred and fifty verſts diſtant from the former; and that part of the Elburus which is covered with ſnow, appears to be above double the height of the Beſhtau, which, however, is much nearer the place whence we viewed thoſe vaſt piles. The other groups of theſe ſnowy mountains appear to the eye one third lower than the Elburus: the moſt conſpicuous are the

* I am not certain what nation has given this mountain the name of Elbrus, or Elburus, which perhaps is not inferior to *Mont Blanc*. The Circaſſians call it Oſhha makhua, or the happy mount; and the Akaſes, Orſi Ipgub. They conſider it as the reſidence of the king of the hobgoblins, whom they call Dſhin-Padiſhah. In the viciſſitudes of an unfortunate war, this mountain is an aſylum to thoſe nations.

broken

broken mounts near the riſe of the Aredon, and the ſummits of Kaſibek beyond the ſource of the Terek. The uſual road to Georgia paſſes near the laſt-mentioned river.

Near Maſlof-Kuut there was formerly a Tartar chapel, with a cemetery, of which ſcarcely a veſtige remains. I have a plan of it, which was made about ten years ago, by Mr. DIGBY, an architect who reſides at Aſtrakhan. The flat vault of the cemetery is remarkable: its conſtruction and ſolidity excited the admiration of this gentleman. I have annexed an engraving of this plan, becauſe the vault bears a complete reſemblance to thoſe I formerly remarked, on the banks of the Akhtouba.

The diſtance from Privolnœ to Novo-Grigoriefskoi, or Feoderovka, is fifteen verſts: the latter is a large parochial village, chiefly inhabited by Malo Ruſſians. Beyond this village we croſſed the ſmall rivulet Karamyk, which runs between ſteep banks, ſtratified with clay and mould. At this place, the baſe of the mountains attracts the attention of the obſerver, while its borders gradually riſe as they extend along the banks of the Karamyk. The diſtance betwen Feoderovka and the parochial village Koſſoi-brod, or Novo-Savedennœ is computed to be twenty-four verſts. We obſerved a conſiderable number of ſepulchral hillocks on the ſteppe which borders the valley. In the vicinity of the village of Karamyk, we croſſed the Sukhoi Karamyk, which was then dry; and after travelling twenty-five verſts, and paſſing the lower village Podgornœ, we arrived at a ſecond village of the ſame name. We here croſſed the Kuma, by a miſerable bridge. The river is but a ſmall ſtream at this place;

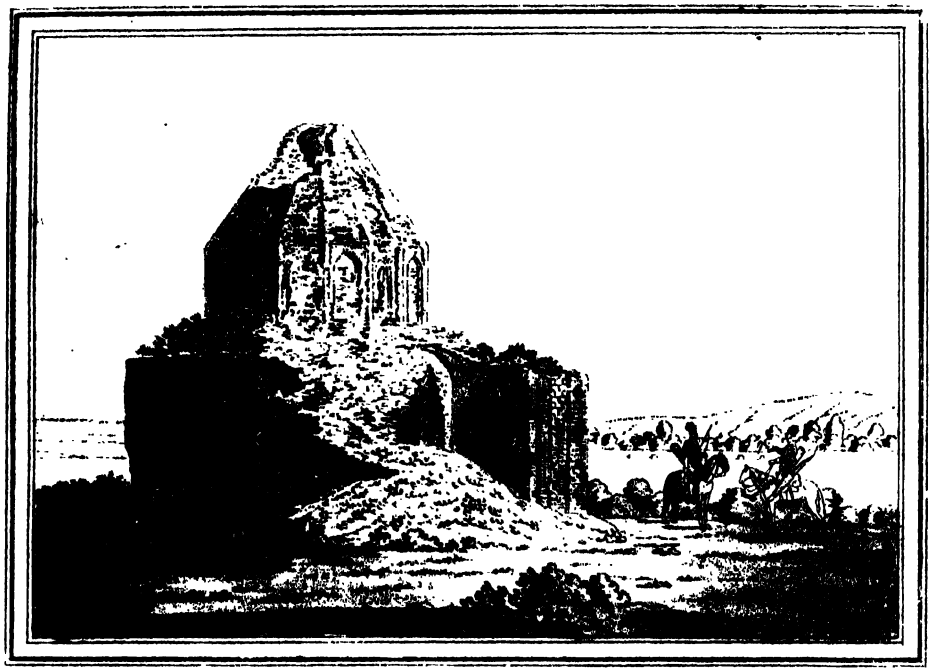
place; and it winds with a ſerpentine courſe through an extenſive and woody valley, in the lower part of which the Podkuma, with a ſtronger current of water, joins the former in the vicinity of the abovementioned Podgornœ.

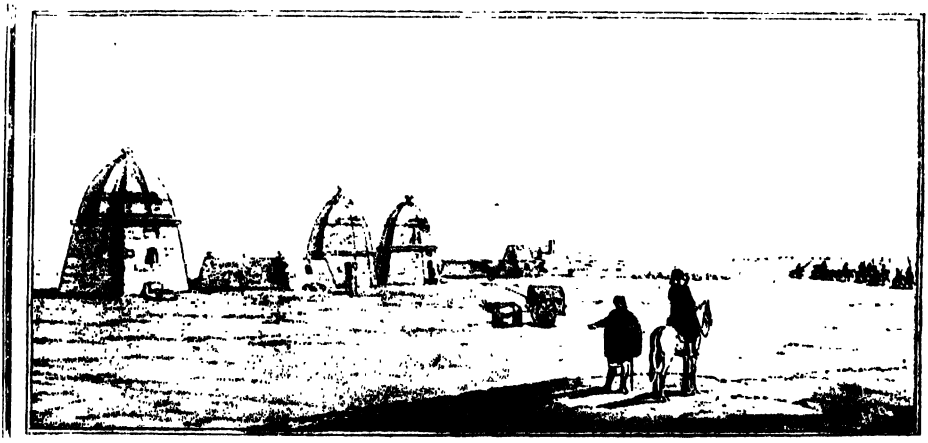
At this place the upper bank of the Kuma is four fathoms high, and conſiſts of a ſandy marl, below which, in the bed of the river, we diſcovered a laminated grey ſchiſtus of ſand: this was the firſt layer we obſerved at the northern declivity of the Caucaſus, the ſtrata of which incline from N. W. to S. E. into a level plain.

The low country abounded with a greater variety of wood than I had before obſerved. The *Acer campeſtre*, wild pear, and cherry-trees of Mahaleb, a ſpecies of ſmall acid plums, called Alitſha, the *Liguſtrum*, *Evonymus grandis*, *Phyſalis Alkekengi* and *Senecio Doria* grew here in abundance: there were alſo numbers of pheaſants, hares, and roebucks.

In the evening of this day, we croſſed the Kuma, in the Circaſſian language called Gum-Yſh, and after travelling five verſts through a buſhy valley, we arrived at the fortreſs of Georgiefsk, which has ſince been made the chief ſeat of the Government. The garriſon of this ill-built place, includes the major part of its inhabitants; and it was at this time the reſidence of the Governor and Commandant General of the army of the Caucaſus. The happineſs I experienced in coming acquainted with the General of Infantry IVAN WASSILIEVITSH GUDOVITSH, a man equally eſtimable for his military talents, politeneſs, knowledge, and affability, made me the more regret that I had arrived in this remarkable region

at ſo late a ſeaſon of the year. Here, though I had only an opportunity to caſt a ſlight glance on the border of the Caucaſus, I perceived that much important information might be acquired on ſubjects of topography, mineralogy, and botany, notwithſtanding the perſevering reſearches of ſo acute an obſerver as the late Profeſſor GUELDENSTAEDT.





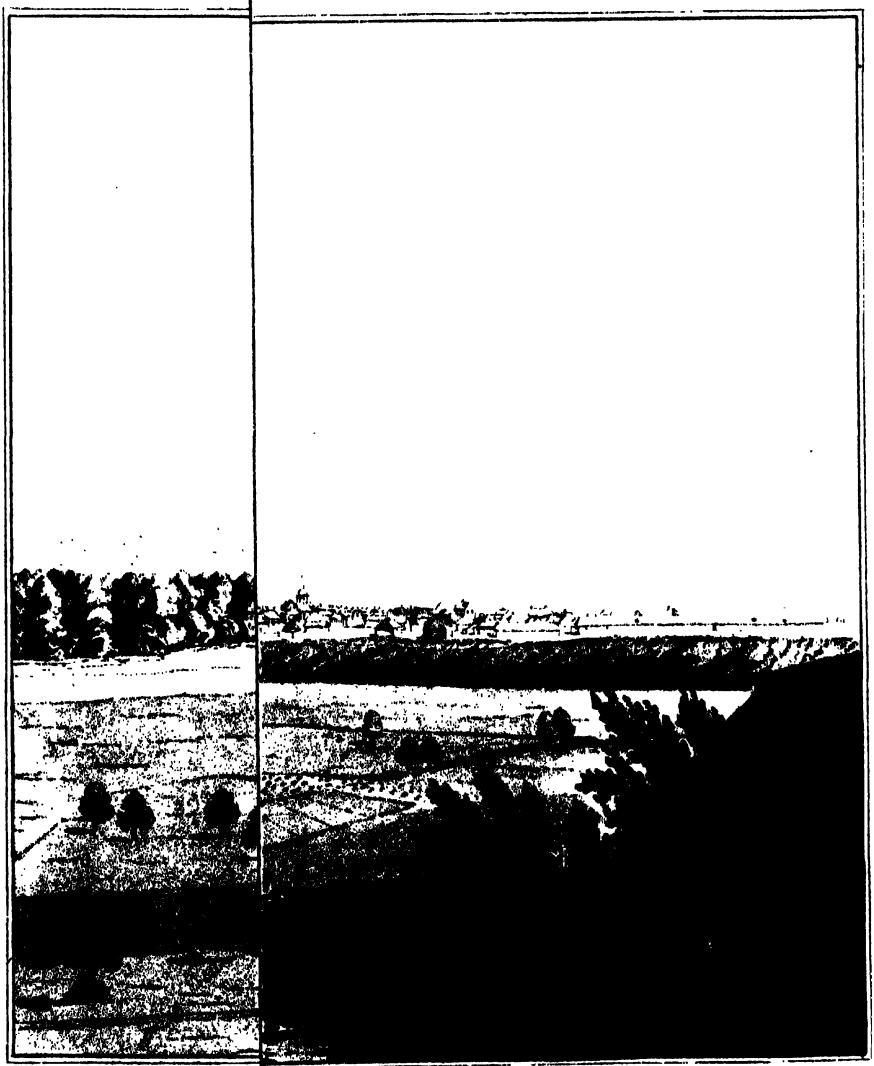
Obſervations made during a Journey along the Caucaſus.

GEORGIEFSK is ſituated near the ſteep verge of a woody valley of the Podkuma, or, as the Circaſſians commonly call it, the Gum. The perpendicular height of this ſteep country is eleven fathoms. The fortifications on the land ſide conſiſt of three whole and a ſemi redoubt, while on the ſide towards the ſhore, it is defended by a parapet and batteries. It has a church; but, except the reſidence of the Governor, there is ſcarcely a decent and tenantable habitation. Happily for the inhabitants, the winter is as mild here as in the mountains of Crimea; an advantage which this place enjoys from its ſituation in the angle of the ſtratified high mountains that extend towards

Severnoi, and protect Georgiefsk againſt the North wind. Notwithſtanding this protection, the turbid waters of the Podkuma, the ſudden viciſſitudes of heat and cold, eſpecially the bleak night-winds from the lofty mountains, the want of precaution in the Ruſſian ſoldier to preſerve himſelf from thoſe nocturnal blaſts, and the frequent exhalations and fogs which ariſe from the moiſt and low country, all contribute to render this place extremely unwholeſome; ſo that intermittent and bilious fevers are endemic and very obſtinate.

On the day when we arrived at Georgiefsk, the ridge of the black mountain along the Caucaſus was covered with new fallen ſnow, which, however, melted in a few days. Some ſnow fell at the ſame time on the mountains of Taurida, which alſo ſoon diſappeared. From Georgiefsk we had a magnificent view of the Caucaſian mountains, in their whole extent from the Caſpian to the Black Sea. The exact repreſentation of this proſpect in Plate 15, which doubtleſs will be a gratification to thoſe who wiſh to obtain a knowledge of the ſituation of theſe mountains, was taken from the baſtion of the fortreſs adjacent to the bank of the Podkuma, towards the South. From this high bank the eye commands the whole low country on the oppoſite ſide, as well as the open and projecting plain, which, as it extends to the foot of the principal mountains, renders the view ſtill more majeſtic.

The country in the environs of Georgiefsk conſiſts of arable land of an excellent quality, meadows, paſtures, fire-wood, and plenty of game: the whole tract from this place to the mountains, bounded by the banks of the Kuban and the Kalaus, has every requiſite for the ſubſiſtence of a conſiderable population.



S. Bourdier del. et fec.

lation. This country, particularly towards the mountains, abounds with deer, roebucks, foxes, and wild cats, which reſemble the domeſtic kind, but are much larger, and of two colours, reddiſh, and grey with dark ſtreaks. Beſides theſe there are, a ſmall ſpecies of wolves, a few jackalls, hares, mountain mice, and the *Spalax Typhle*, or large blind mole. Of wild-fowl, particularly in autumn, large and ſmall buſtards, partridges and pheaſants, are common here.

On the 9th of September, I undertook a journey to the fortreſs of Conſtantinogorſk, which was of great importance to me, as I wiſhed to have a nearer proſpect of the Beſhtau, and at the ſame time viſit the ſource of the ſulphureous bath in its vicinity. I propoſed to travel farther to the excellent acidulated ſprings ſituated beyond the line, near the villages of the Abaſſines belonging to the family of Dſhentimir.

From Georgiefsk, we proceeded over a riſing fertile plain covered with excellent graſs, and continued our journey along the banks of the rapid Podkuma that flowed with an undulating current down to the left. We firſt travelled to the Weſt and S. W. leaving Lyſſie Gora or the fox mountain, which is ſituated beyond the Podkuma on our left; we then proceeded by the point where the river makes a conſiderable winding ound the ſteep and woody weſtern ſide of that mountain. About half way on our road we found a picquet of Kozaks; and gradually turning in a S. W. direction, we reached a riſing plain which was thinly though uniformly covered with wood and ſpreading plants, ſuch as indicated a more mountainous country and a colder

colder climate. Here we attained the extenſive, level baſe, or what may be termed the more elevated and common foundation of the high promontory called Beſhtau, and its collateral mountains. In this region we found numbers of the *Amygdalus nana* with remarkably large fruit, the *Roſa pimpinellifolia*, *Sambucus Ebulus*, *Cornus ſanguinea*, and various wild fruit trees with an intermixture of common foreſt trees. Among other herbs we obſerved a great profuſion of the *Senecio Doria*, and various ſpecies of the burdock and thiſtle.

We now paſſed the very extenſive woody baſe of the mountain called Metſhuka, which roſe on our leſt, and from which we could diſtinctly ſee the hillock of ſand-ſtone, whence the warm ſulphureous bath takes its ſource. To the right, we left what is called the mountain of iron, which forms the extreme point of land near the Kuma, the ſteep and rocky mountain of Serpents, and the Beſhtau itſelf. The baſe of the Beſhtau, which is ſituated between the two laſt-mentioned mountains, and is tolerably level, is interſected by a deep, broad and woody dale, in which the ſprings, that flow from the northern and eaſtern parts of the mountain, form a rivulet called Shemuka that runs towards the Podkuma. Among others a warm mineral ſpring is ſaid to ariſe here. The level baſe of the mountains very gradually declines towards the Podkuma, which is five verſts diſtant from the Beſhtau. On the bank of the river is built the fortreſs of Conſtantinogorſk, ſituated about forty verſts diſtant from Georgiefsk. It is one of the moſt important poſts on the whole line of the Caucaſus, and was built to reſtrain the incurſions of the Circaſſians, Abaſſines, and Kundure Tartars. We arrived there about two o'clock in the afternoon, and found a garriſon

conſiſting

conſiſting of a battalion of chaſſeurs, and a troop of dragoons.

In this place we met with a very hoſpitable reception, in conſequence of orders given by the commanding General; and the ſame afternoon we made an excurſion in a coach to the ſulphureous bath, five verſts diſtant to the N. E. of the fort. As we propoſed to proceed on the following day to the acidulated ſprings, a ſtrong detachment of chaſſeurs and dragoons was ſent before us to take poſt at that place.

Early on the 10th we ſet out for the mineral ſpring, eſcorted by a detachment of dragoons of the regiment of Aſtrakhan, and a troop of Kozaks.

We proceeded along the banks of the Podkuma towards the S. W., firſt over a level country where we obſerved much arable and meadow land; and on the height were a few iſolated ſtone monuments of the Circaſſians and Tartars tranſplaced hither from the Kuban. We paſſed the rivulet Pſiptza which iſſues from the Beſhtau, then croſſed the Gurmik, and two verſts farther the Eſſentzuk, all on the left ſide of the Podkuma. The country on the oppoſite ſide now became progreſſively higher and more hilly, and beyond the Eſſentzuk it alſo roſe gradually and was more mountainous. White mountains of a compact and calcareous nature, without any remarkable petrifactions, environed the beautiful valley of the Podkuma, which is adorned with trees abounding with young twigs: theſe, in ſome places, were ſo cloſely intermingled in thickets as to render the road narrow and almoſt impaſſable. The road extended towards the South, along the bank of the river, and near the baſe of the mountains. On the ſteep ſides of the calcareous hills, there grew numbers

numbers of barberry, cornel, cherry trees, and various ſhrubs. In the ſhady clefts I diſcovered the beautiful *Veronica orientalis* * in full bloſſom at this late ſeaſon. We ſaw ſeveral tombs of the Abaſſines and Circaſſians, on eminences along the border of the low country: they were formed of ſtone, ornamentally diſpoſed either like a cube or a hollow ſquare, and generally had at each corner a large poſt adorned on the top with a head.

Before we croſſed the Podkuma, and about twenty four verſts from Conſtantinogorſk, near the road which runs along the edge of this low country, we found a bed of white limeſtone conſiſting entirely of lamina, and poliſhed fragments in the form of lentils, which readily crumbled between the fingers. This ſtratum appeared like a garland, which at firſt was parallel with the road, about five or ſix fathoms above the valley, but progreſſively exhibited irregular and perpendicular rocks, above ten fathoms high. It obviouſly ſhews traces that it had formerly been many fathoms higher, but its breadth cannot be eaſily aſcertained.

On examining this grey ſtratum of limeſtone, we perceived that from the Podkuma towards the Kuma it gradually formed a thick horizontal layer of a yellow and grey ſandy conſiſtence, and declined in a ſtill greater degree towards the latter river, till it became even with the baſe of the mountains.

We here croſſed the Podkuma, that flowed with a rapid current over an uniform ſtratum of limeſtone; and the water was ſo deep, that it reached to the bellies of our horſes. On the other ſide, where a ſmall brook falls into this river, we came to an elevated plain, which forms the foot of the mountains.

* *Veronica erecta, Blattariae facie Buxbaum.* Centur. plant. 1. t. 35.

On

On this plain we ſaw ſeveral villages of the Abaſſines which belong to the family of Dſhentemir: it is beſides remarkable for an old, extenſive, intrenched camp, probably made by the Tartars. This entrenchment is denoted by the letter F in the 16th plate, which repreſents the country adjacent to the acidulated ſpring. I have purpoſely named this excellent fountain, Alexander's well, in honour of the promiſing young Prince of that name. The intrenchment incloſes a great part of the plain; it terminates on one ſide at the ſteep bank of the Podkuma, and on the other ſide it is bounded towards the S. W. by the rivulet Nartzan. This fortification contains a number of ſepulchral hillocks, which probably have ſerved as ſtations for centinels.

On the right, or towards the Weſt, at a conſiderable diſtance, we ſaw a remarkably high rock, in a large valley environed by mountains: it is called by the natives Burg-uſſan, and is repreſented in the Vignette No. 8.—The ſteep ſides of this rock, which we could aſcend only by ſome rugged paths, their ſlopes, which were ſimilar to terraces, the ditches, ſepulchres and fragments of earthen ware found on its level ſummit, but ſtill more the tradition of the neighbouring inhabitants, gave riſe to a conjecture that this natural fortification was formerly poſſeſſed by an iſolated colony of Franes, or other Europeans. Perhaps theſe coloniſts were Venetians, or Genoeſe, who had made choice of this ſpot, on account of its advantageous ſituation for their perſonal ſafety, and the protection of their trade. I conſider theſe ſlopes or terraces, which are frequently obſerved on the upper part of the mountains of this country, as natural productions; although ſeveral well-informed engineers

have ſuppoſed them to be the work of art. In my opinion, they have originated from the deſtruction of ſucceſſive horizontal ſtrata, and other natural cauſes.

The villages of the Abaſſines in this country reſemble thoſe of the Circaſſians in their ſtructure, and internal arrangement; they have, beſides the neceſſary rooms for the family, ſeparate apartments for viſitors, and, inſtead of ſtoves, they conſtruct chimneys of wicker work, plaſtered over with clay. The houſes of the former differ from thoſe of the latter only in this circumſtance, that they are neither diſpoſed in rows, built in ſquares or rondels, or incloſed within a common yard, but are ſcattered ſingly, have a ſmall yard, and are ſecured by ſtrong rails ſurrounding the whole premiſes. The roofs of their houſes are ſlightly built of rafters, covered with herbs and long ſtalks of plants: the couch or ſofa is a ſort of divan, made of wood and placed to the left, on entering a room; it is covered with felts and bolſters. On the walls of the cabin are ſuſpended furs, and other articles of dreſs, arms, and variegated ſtraw mats of exquiſite workmanſhip. Under the roof there hangs in bundles their winter ſtore, conſiſting chiefly of Indian corn. Within the premiſes, or in the yards belonging to their houſes, they cultivate gourds, and a few other culinary vegetables. Their poultry and bees are managed ſimilar to thoſe of the Circaſſians. Their mode of dreſs alſo, both men and women, perfectly reſemble the Circaſſians.—I propoſe to mention the particulars relative to their tribes, in a ſubſequent part of this volume.

The rivulet Nartzan, towards the ſource of which we now aſcended for ſeveral verſts, proceeds with a rapid current and

ſome

ſome curious windings, from a valley ſituated at the foot of riſing mountains of lime-ſtone. This dale is confined between two high ridges, and fronted by a third, which is ſtill higher. Around the latter, the three principal ſprings of the Nartzan, the Khoſada and the Elkoſhu, run in a ſerpentine direction from their ſources, and re-unite immediately below the mineral ſpring. The verdant mountains, though very ſteep, are here and there wreathed with rocky terraces, and particularly on their ſummits. The moſt lofty hills have a chain of communication by ſmaller ridges; and behind them are eminences ſtill higher, which re-unite towards the South with the calcareous mountains and thoſe of ſchiſtus; but they are interſected by the valley of the river Malk, and the rivulets which contribute to its formation.

The mineral ſpring of Alexandrof, in the Abaſſine and Circaſſian dialects called Nar-Tzana, that is, drink of the giants, or hobgoblins; in Tartar, Atſhe-Su, or acidulated water, is ſituated at the diſtance of four verſts from the Abaſſine villages, and five from the croſſing of the Podkuma, as repreſented in the ſixteenth Plate. Here the road ſeparates, and leads towards the Kuban, over high mountains, and a ſmall marſhy plain, which occupies the angle between the rivulets Khoſada and Elkoſhu. The mineral ſpring beforementioned is ſeparated from its two collateral mountains, and alſo from the more conſiderable, though flat mountain, ſituated immediately before the ſpring in the dale, by thoſe rivulets which run in various meanders through its vicinity, but particularly the Khoſada, which extends more towards the Eaſt. The narrow valleys, from which the abovementioned rivulets flow in deep channels, cut through

a firm bed of lime-ſtone, interſect this mountain on both ſides, and almoſt entirely ſurround it. The ſmall and well-ſupplied brook which forms the ſpring of mineral water A, again unites, after a ſerpentine courſe of only ſixty feet, with the rivulet Khoſada, which runs cloſe to the former, but in a more eaſtern direction; and into which, immediately after, falls that of Elkoſhu, towards the Weſt. Theſe three rivulets conjointly produce that which is called, from the middle or mineral ſpring, by the name of Nartzan, or Nar-Tzana.

In the marſhy plain, between the mineral ſpring and the neareſt windings of the two rivulets, there iſſue ferruginous ſprings, which, in various places, depoſit ochre, and where we obſerved a thin variegated pellicle floating on the water. It would doubtleſs be worth the trouble of analyzing theſe veins of martial water; which, if collected and purified, would perhaps afford a very ſalutary mineral ſpring of a different kind. The ſame ferruginous water, which appears to contain rather a leſs quantity of the carbonic acid, alſo flows with ſmall bubbles on its ſurface, into the old baſon of the mineral ſpring, at preſent choaked up with mire, or, perhaps, deſignedly filled up by the malicious Abaſſines; it runs in a very ſmall ſtream into the baſon recently formed, and is ſeparated from the former only by a narrow ſandy path.—The diſtance of the next angle of the rivulet Khoſada, which flows with rapidity againſt the old and new baſons of the ſpring, ſo that it has deeply undermined its bank, is only thirty-ſeven Engliſh feet from the old baſon, and twenty-eight feet farther from the real ſpouting ſpring. This rivulet deſcends in a direct line towards the ſpring, and it may be apprehended that it will gradually make its way to the

the mineral ſpring itſelf; an event which might render the reſtoration of the latter very difficult and expenſive. Hence it would be prudent to divert the courſe of the rivulet Khoſada, by means of a canal, which might be opened acroſs the marſhy low country; to dam up the old conduit of the rivulet, and thus to ſecure the excellent ſpring of mineral water. For this purpoſe it would be neceſſary to turn the courſe of the rivulet above the angle neareſt to the mineral ſpring, a direction which is pointed out in the Plate by a punctured line; as the diſtance thence to the Elkoſhu is only about ſeventeen fathoms.

The new baſon of the ſpring is of a conical form towards the ſpouting mouth, is ſandy at the edge, and upwards of twenty-ſeven feet long, and ſeventeen broad.

The principal gulph is not exactly in the middle of this baſon; its limpid mineral water iſſues with violent emotion, continually ejecting large bubbles, together with a ferruginous brown and fleck ſand, like fine gunpowder: it is four or five arſhines wide; and on ſounding it with the plummet, we aſcertained its depth to be upwards of nine feet. But on examining it with the pikes of the Kozaks, we found that it was upwards of five arſhines deep, and that at the bottom it contained rocky cliffs, apparently proceeding in an oblique direction. The boiling ſpring, by the brown colour of its ſand, and the large bubbles of water it throws up, perfectly reſembles coffee in a ſtate of ebullition. The violence with which the water forces this ſand to the ſurface, is more or leſs conſiderable at different times; and frequently, on immerſing a glaſs immediately below the ſurface of the water, it was taken out more than half full of this brown ſand; which, however, is inſtantly precipitated,

tated, and the effervescent water appears as clear as crystal: the sand likewise, by its own weight, falls to the bottom in the spring itself, so that it is not carried into the channel of the bason. It may be easily conceived, what a mass of water must proceed from a spring, which is powerful enough to cause bubbles of such magnitude as to support even the human body when floating in the bath, instead of allowing it to sink by its own weight. Its junction with the two other, though more considerable rivulets, is attended with so remarkable an effect, that notwithstanding the great loss of carbonic acid in its course, and subsequent mixture with the water of those rivulets, the barbel and trout, which are very numerous in their superior tracts, cannot exist here. If such fish are taken and plunged into the spring, they immediately float motionless on its surface, and recover but slowly when replaced in the water of the rivulets.

The sandy mud on the border of the bason exhibits a slight precipitate of the finest martial ochre, which has also formed a second border somewhat above the other, at the height to which the spring rises in summer, when its water is most abundant. A similar delicate precipitation is perceptible on the small lime-stones scattered in the channel formed by the spring, as far as its entrance into the bason, where a bath has been erected, and a slight attempt has been made to secure the water by dams. It appears to me however very probable, that this sediment of ochre arises merely from the admixture of the chalybeate waters oozing from the shallow spring situated above; for the water drawn up from the large deep spring, as well as that collected from the small adjacent veins, does not contain

contain any perceptible traces of iron. Theſe veins are of different ſizes; they here and there ſpout forth in the ſhallow parts of the baſon, ſometimes of the thickneſs of a man's wriſt, and ſometimes only that of a finger, without however agitating the brown ſand beforementioned. On the contrary, the border of the baſon, and farther down in the channel, where the mineral water takes its direction over a ſtony dale entirely covered with ochre, the taſte, as well as chemical experiments, evince that it contains a conſiderable portion of iron particles. This water, on being drawn up ſuddenly, is as limpid as cryſtal; when its ſand is precipitated, it throws up a number of little bubbles like the beſt Champagne wine, and likewiſe ſtimulates the tongue with an agreeable acid, which is quickly conveyed to the noſe. It is ſo much impregnated with air, that bottles filled with it, though well corked, often burſt before they can be carried to the higher parts of the neighbourhood, where viſitors uſually encamp. Although this excellent water parts with a great proportion of the carbonic acid with which it is ſuperſaturated, it ſtill retains a quantity equal to that contained in the ſtrongeſt Seltzer water; even after it has ſtood to ſettle, and is put in ſtrong bottles, or thick, ſmall caſks, either of which ought to be well corked, and coated with tar. When the cork is drawn, the water makes a report; it remains freſh and clear, and is not rendered turbid by the magneſia it contains; unleſs when boiled. We carried a ſmall ſtock of this mineral water along with us for making tea, and found it very palatable, though it had loſt in ſome degree its limpidity.

On plunging the hand into the ſpring, no remarkable ſenſation of cold is felt; the water, on the contrary, ſeems in ſome veins

to

to be lukewarm, particularly during the cold air of the morning. But it is apparently cold when drank, and eſpecially when the heat of the ſun promotes its evaporation, and conſequently imparts to it a degree of freſhneſs. If it be drunk while the body is heated, it has an effect on the ſtomach ſimilar to ice. By the thermometer of Reaumur it appears, that this water has a temperature of about ten degrees, when the atmoſphere is at ſixteen. It effervesces with all kinds of wine, has the taſte of Seltzer water, and may be drunk in any quantity at pleaſure, without repugnance or danger, as it diſagrees but with few perſons, and generally with thoſe who have an alkaleſcent ſtomach, who are fond of acids, or are troubled with the tape-worm. It eaſily and quickly paſſes off by urine, is attended with a ſlightly laxative effect, and ſometimes even diarrhœa; but nevertheleſs evidently refreſhes and invigorates the body, inſomuch that it has produced wonderful effects on ſeveral ſick and debilitated perſons. This mineral water is of the greateſt efficacy in hæmorrhoidal obſtructions, after inveterate fevers, and the ſubſequent chronic complaints thence originating, as alſo ſuppreſſion of the menſes, and ſimilar indiſpoſitions, which are frequently the forerunners of diſeaſe. I make no doubt that it will be found of great ſervice in various maladies, if it be more generally uſed, and acquire greater celebrity.

With reſpect to the conſtituent parts of this mineral ſpring, I ſhall obſerve that it appears to me to be indebted for its remarkable briſkneſs principally to the carbonic acid, ſaturated with lime and magneſia, as well as to the ſalts it holds in ſolution. When placed on a very gentle fire it ſpeedily boils, with great agitation, immediately

immediately begins to grow turbid, and depoſits a white ſediment. From ſixteen pounds of water, the dry ſediment obtained by evaporation weighed two drachms and twenty grains. If lixivium of ſoda be added, it ſtrongly effervefces and boils, while it inſtantly forms a thick, milky cloud, which gradually falls to the bottom; and on a new addition of the lie, the water again effervefces. A ſolution of the Pruſſian blue likewiſe cauſed a copious, white precipitate, and at the ſame time rendered the water turbid. A ſolution of the ſugar of lead, after a ſtrong effervefcence, depoſited a ſediment as white as ſnow, which could be again diſſolved. On adding a ſolution of ſublimate, it produced a ſimilar effervefcence, together with a trifling white precipitate. Silver, diſſolved in the nitric acid, afforded a white precipitate, which ſoon after turned black. A ſolution of mercury in the ſame acid inſtantly formed a yellow precipitate. Sulphuric acid did not produce any effervefcence, nor the ſmalleſt change in the water. A ſolution of cream of tartar gave a white precipitate. Pure ammonia, as well as the tartariſed ſpirit of ſal ammoniac, rendered the water white as milk, and afforded a ſimilar ſediment. Blue colours are little, if at all changed, by this chalybeate. The tincture of galls, and an infuſion of tea, were ſcarcely tinged by this water when freſh drawn from the ſpring; on the contrary, when mixed with that taken from the baſon or the rivulet, they communicated to it a faint blueiſh tint. But the water taken from the environing ſwamps, and the old baſon, which is now choaked up with a ſlimy mud, on the addition of tea, ſuddenly ſtrikes a colour as black as ink, affords a very ſmall portion of air, on being combined with alkali, and depoſits a whitiſh pre-

cipitate of a filthy appearance; but, when heated, quickly forms a ſimilar ſediment of a yellow colour. Twelve pounds of this water produced a precipitate of one drachm, thirty-eight grains.

The white ſediment of the pure ſpring water loſes in drying about ſeven grains. The reſult of the chemical analyſis which M. Lovitz, the academician, had the kindneſs to undertake, gave from one hundred and thirty-three grains the following ingredients:

Of muriat of magneſia	- -	1 grain.
Glauber's ſalt in a dry ſtate	- -	46
Vitriolated magneſia in ditto	- -	25
Muriat of ſoda -	- -	10
Carbonat of lime -	- -	26
Carbonat of magneſia	- -	10
Carbonat of iron -	- -	2
Sulphat of lime -	- -	13

The yellow ſediment of the veins of chalybeate water reduced by exſiccation, at ninety degrees, afforded the following reſult:

Of muriat of magneſia	- -	1 grain.
Glauber's ſalt in a dry ſtate	- -	24
Vitriolated magneſia in ditto	- -	17
Muriat of ſoda -	- -	12
Carbonat of iron -	- -	10
Carbonat of lime -	- -	16
Carbonat of magneſia	- -	4
Sulphat of lime -	- -	6

The

The origin of the mineral ſpring of Alexander might probably be diſcovered in a horizontal line of ſand-ſtone, below the calcareous ſtrata of the ſurrounding mountains, from which the ſpouting ſpring appears to convey the brown ſand. The environing mountains exhibit, almoſt uniformly, a calcareous, yellowiſh ſtone, of a ſandy nature, in thick layers, which we likewiſe diſcovered on the other ſide of the Podkuma, over the inferior horizontal beds of greyiſh lime-ſtone. At the baſe of two eminences, ſituated a conſiderable diſtance to the South-eaſt of the ſpring, towards the ſource of the Khoſada, and behind the next mountains, we firſt diſcovered, in the lowermoſt ſtratum of the one, a ſand-ſtone of a red brown colour; and in the other, a grey, fine, mellow, and micaceous ſand-ſtone. If it be true, that the water of the mineral ſpring is more abundant in ſummer than in autumn and winter, it appears that it derives its origin from the ſnowy mountains with which the horizontal ſtrata are connected. Beſides, it is evident that the vein of the ſpring runs at a conſiderable depth below the bed of the rivulet which it croſſes, and with which it has no communication. Hence there is no reaſon to fear that the turning of the courſe of the rivulet Khoſada, which threatens to burſt its banks, and combine with the ſpring, will be attended with the leaſt diſadvantage.

At the foot of the high eaſtern mountain, contiguous to the valley in which the mineral ſpring riſes, we ſaw immediately above the rivulet ſeveral abrupt rocks, as repreſented in Plate 16, *a. b.* which are remarkable, as they conſiſt of a hard tophus, in thin ſucceſſive layers, interſperſed with brown, ferruginous lamina, nearly reſembling thoſe of Carlſbad, and

full of fine impreſſions of leaves of trees, and ſtalks of plants: it alſo contains petrifactions of ſmall ſhells, incloſed in ſeveral brown and clayey neſts or cluſters. As theſe rocks are now entirely expoſed on the declivity of the mountain, it is difficult to imagine from what quarter the ſpring, or rivulet, formerly flowed, to which they are doubtleſs indebted for their origin. I have met with no diſtinct veſtiges of petrifactions in the lime-ſtone of the neighbouring mountains, either in its ſuperior ſandy bed, or in the grey and ſolid ſtratum which lies expoſed in the currents of the rivulets.

On the 11th of September, I employed the forenoon in collecting thoſe beautiful flowers which the ſeaſon then afforded, on the high mountains ſituated towards the ſource of the Khoſada, which were richly covered with plants. At about half the aſcent of thoſe mountains, where they are overſpread with tall graſſes, I found the *Aconitum Anthora*, *Dracocephalum Ruyſchiana*, and *Gentiana ſeptemfida* *, producing generally pentapetalous flowers: the *Gentiana Cruciata* and *Amarella*, with very large bloſſoms, the *Chryſocome Linoſyris*, a tall *Scabioſa*, the *Centaurea montana* and *Jacea*, *Salvia verticillata*, *Phlomis tuberoſa*, and *Origanum heracleoticum*. But on the higher rocks I diſcovered two ſpecies of pinks; the petals of the one being red on the top and yellow at the bottom, while the other grew in the form of a thick and branching tuft of graſs, with a ſtrong root, a long calix, and white petals; as alſo a white blooming *Campanula*, with a long ſtalk, hanging down the precipices of the rocks, and producing large bell flowers, the *Scutellaria*

* Flor. Roſſic, Pars II. Tab. 92, Fig. 2, p. 11.

orientalis,

orientalis, *Teucrium chamædrys*, *Onoſma ſimplex*, a particular *Dracocephalum*, *Sedum Hiſpanicum* and *vermiculare*, *Thymus Zygis*, *alpinus* and *vulgaris*, *Ziziphora capitata*, one ſpecies of the *Aſter*, and the *Rhamnus lycioides*, which ſpread on the rocks in the form of a fan. There is ſcarcely any wood in theſe environs, except towards the ſources of the rivulets. I again obſerved here the *Gryllus obſcurus*, *fuſcus* *, *cæruleſcens*, and *ſtridulus*, flying in great numbers; inſects which are very common in Siberia, and were here of an unuſually large ſize.

On the afternoon of the ſame day we returned to Conſtantinogorſk, where the Lieutenant-Colonel and Commandant of the place, MICHAEL MICHAELOVITSH VEROVKIN, received us with every mark of politeneſs.

The 12th of September I employed in ſurveying more accurately the mountain Metſhuka, or, as it is called by Güldenſtädt, Maſhuka, as well as its anterior ſide, which conſiſts of a ſpecies of tophus; and I was alſo deſirous to examine the ſulphureous baths of that remarkable mount. As theſe are ſubject to continual changes, I ſhall attempt a detailed deſcription of its preſent ſtate.

The whole mountain is ſituated on the common and extenſive baſis of the Beſhtau, and its adjacent hills: it borders on the Podkuma, about five verſts North-weſt below Conſtantinogorſk. On the ſame road which leads to the Circaſſian village

* See the ſecond part of my former Journey, Supplement, pp. 77 and 727 of the original.

of

of Tramt, ſituated near the Podkuma, at the North-caſt baſe of the mountain, and which is remarkable for a very valuable race of horſes; we alſo paſſed the bath, and travelled over the anterior part of this hill. The mountain itſelf is a calcareous maſs, of conſiderable extent, and in a conical form; it is richly covered with wood, and apparently more than one third part the height of the lofty Beſhtau: it conſiſts of a greyiſh, firm, calcareous mineral, without petrifactions, not unlike the hornſtone, and is diſpoſed in tolerably thick, horizontal beds. On the ſouthern ſide, this mountain, which is repreſented in the ſeventeenth Plate, with its anterior appendage, and the bath ſituated upon it, together with a diſtant view of the Beſhtau, contains in the centre of its ſummit a deep cleft, like a valley overgrown with wood: the clouds of miſt, which this day ſurrounded the Beſhtau, made it appear as if emitting ſmoke; and this extreme fog, after having been entirely diſſipated in the lower parts, remained towards the ſummit till mid-day.

From the foot of the mountain, the ſteep and narrow ridge, conſiſting of an uncommonly beautiful white tophus, extends along the low country of the Podkuma, to the Weſt, and in a curvated direction towards the North-weſt, not unlike a promontory. This ridge divides itſelf at the weſtern extremity into two others, one of which, at preſent covered with plants, extends directly to the Weſt, runs nearer to the river, is upwards of two hundred paces longer than the other, and appears to be a more ancient production of the ſulphureous waters. The view of the mountain is taken from the prolonged ridge juſt deſcribed, where the *Roſa pimpinellifolia* grows in abundance. On the ſouthern ſide of the whole ridge, oppoſite to the river,

we

we obſerved here and there ſome as it were rounded projections of tophus, diſpoſed in ſucceſſive laminated ſtrata, which appeared to owe their origin to ſmall ſprings, or channels, of lime-water, impregnated with ſulphur; and ſome of which ſtill continued to run, while others were then in a dry ſtate: theſe ſtrata, as well as the whole mountain, abruptly decline towards the low country.

The moſt recent and important ſpring of hot ſulphureous water now riſes from the round extremity of the principal, but ſhorter ridge; its courſe is towards the North-weſt, from a perpendicular height of eight or nine fathoms above the baſe of this mountainous ridge, as is repreſented in the Plate. Several other ſtrong veins of water ſpouted from this ſpring, before its current entered the low valley, where they moſtly diſappeared under the dry ſoil; after having paſſed over the laminated ſtrata of tophus, they terminated in a round form, by two diſtinct ſteps. This curious tophus is perfectly white and pure over the whole of the projecting height; while it exhibits on the ſurface the undulating motion of the water. Its ſtratifications are ſo diſpoſed that it forms hollow, ſucceſſive layers of different thickneſs, in ſome places exceeding half an inch, and internally preſenting flaky cryſtals, as it breaks in radiant, arboreſcent figures. In the uppermoſt ſtratum, the different ſpouting veins have formed ſmall channels, in which I found a depoſition of flowers of ſulphur, and the green *Byſſus thermarum*. Near the ſource of the veins a bath has been hewn in the tophus ſtone, from which the overflowing water retreats, ſimilar to a little rivulet. Contiguous to this bath, a ſmall chamber has been built of wood, for the uſe of bathers.

From

From theſe newly watered ſlopes, near which, a little below the ſpring, we obſerved a maſs of the fineſt and whiteſt mountain-flour, we aſcended the higher ridge by two other acclivities. The firſt imperceptibly declines, and extends to a length of about one hundred paces, while it forms a ridge ſomewhat round on the top, ſhews a ſlight, longitudinal cleft, and is ornamented with various kinds of rock-plants on its ſide. From the very ſpot where the principal ridge divides itſelf into two branches, in the manner above deſcribed, it riſes ſtill higher, makes as it were a rounded ſlope of ſand-ſtone, and extends uniformly to a length of three hundred and twenty-five paces. This part of the ridge, which, like all rocky declivities expoſed to the South, produces various meridional plants, exhibits, in its whole vertical extent through the layers of tophus, a perpendicular cleft, nearly in a ſtraight line, and preſents a chaſm, from a quarter to a whole arſhine in breadth, and which, in a few places, not filled up with earth, is of a depth that cannot be aſcertained by the eye. From the collateral cavities of this cleft I obſerved the rock-plants in a vigorous ſtate, eſpecially where the ſoil had covered part of theſe hollows; namely, ſeveral kinds of dwarf-elms, oaks, and wild white roſes, which are ſaid to acquire a violet colour above the clefts; farther, the elder, creeping wild vine, cornels, the *Rhamnus lycioides* and *Catharticus*, numbers of the *Ruta muraria*, and other plants growing upon the rocks.

From this cleft the ridge again mounts with a ſlope, but leſs conſiderable than the former, and becomes ſo narrow that the upper part is often only ten fathoms broad: it riſes progreſſively towards the top, where it forms a glen ſcarcely nine feet broad,

broad, and extends to an uniform depth, between two old rocky walls, compoſed of tophus ſtone, but which are ſometimes interrupted on the northern ſide; though the ſloping ridge continues its courſe for two hundred and eighty paces. In the glen we obſerved ſeveral dwarf-trees, ſuch as the elm, the buck-thorn, cornels, *Evonymus*, and other coppice-wood, among which were the *Alkekengi*, and in a few places ſedge, as well as other plants that uſually grow in the foreſts of this country.

As we aſcended the ridge, it continued without either cleſts or projecting rocks, to a length of nearly one hundred paces; but we now found, in an open cleft, upwards of a fathom broad and deep, by ten arſhines in length, a natural hot bath, of a temperature rather higher than that of the inferior ſpring: it extends into the rock of ſand-ſtone towards the Eaſt, is ſix feet wide, nearly ten fathoms long, and has a ſmooth vault, not unlike an artificial grotto. The Turcoman women bathed here, while their huſbands reſorted to the lower bath.

Contiguous to theſe baths, the ridge of tophus ſtone which hitherto extended on both ſides, without interruption, began to communicate with the principal mountain, riſing almoſt to the height of that which projects above the level of the Pod-kuma: and this elevation commences exactly at the ſpot where the parent hill preſents the ſmoking cavity above alluded to, being about the middle of its aſcent above the ridge.

Another ſulphureous ſpring riſes at a diſtance of one hundred and eighty paces from the bath before deſcribed, and which is ſituated along the ridge, gradually becoming broader, and having on its ſouthern ſide ſeveral ramifications of old ſprings: here another cleft appears, at firſt empty, but afterwards fre-

quently covered with ruſhes, and at length producing the laſt-mentioned ſpring, which, like that of the former, makes a long channel uſed for bathing. The bath is from four to five arſhines wide, has a collateral cleft, from one and an half to two arſhines broad, by eight arſhines long, and terminates at both extremities with a narrow, high-vaulted grotto. The water of theſe clefts apparently runs in a weſtern direction towards the women's bath before alluded to, while it partly oozes lukewarm, and of a milky colour, from a rock eight arſhines broad, which conſtitutes the ſouthern wall of the clefts ſerving for baths, where the overflowing water has, by its depoſited matters, formed a hillock of ſand-ſtone.

Eighty paces farther, above the ridge, riſes another ſpring of ſulphureous, clear, and very hot water, which has likewiſe produced a ſmall hilly prominence; and in the vicinity of this, as well as by the preceding ſprings, the *Andropogon Iſchæmum* and *Schœnus nigricans* grew in uncommon profuſion.

At one hundred and ſixty paces from the latter, and in the ridge of tophus-ſtone, which becomes progreſſively more rocky, we met with a ſpring of freſh, cold, and very potable water, contained in a ſtone baſon.—But two hundred paces farther, we again diſcovered a warm, ſulphureous ſpring, which was the laſt of this kind, and iſſued from a round hillock of ſand-ſtone. The layers of tophus-ſtone now began to decline as we aſcended the ſteep and calcareous mountain, where the road to *Tramt-Kawak* * again leads down the hill, whence we had a view of that place in the low country before us. About twelve

* Kawak, in the Circaſſian dialect, ſignifies a village, or burgh.

hundred

hundred paces from the latter ſulphureous ſpring, and after having aſcended a rocky path, we arrived at a dreadful abyſs on the ſteep ſide of the mountain, at the foot of which the village is ſituated:—this gulph has been apparently formed by the fall of a cylindrical maſs of calcareous rock, no leſs than twenty fathoms thick; it cannot be approached without danger, on account of the giddineſs it produces in the beholder. After repeated trials to aſcertain its depth by means of a plumb, I found that it was from ſeventeen and an half to eighteen fathoms deep: and the ſtones which we threw into it were nearly three ſeconds in falling. The water at the bottom appeared to be little more than two feet deep, and the weights plunged into it were perceptibly warm when withdrawn: it is likewiſe of a ſulphureous nature, as is manifeſt from the ſtrong ſmell of the *hepar ſulphuris* emitted from the abyſs. Notwithſtanding this ſuffocative exhalation, wood-pigeons, which we ſtarted by throwing in ſtones, build their neſts and paſs the winter in this conſtantly warm retreat. The greater number of theſe birds were out, in ſearch of food: when we departed a large flight of them appeared, and, after having flown ſeveral times round this ſubterraneous abode, they plunged ſuddenly into the gulph. On approaching its brink, and laying ourſelves down on our breaſts, we could ſee the water at the bottom, and two very large caverns, one of which we obſerved towards the hollow middle of the great mountain, and the other in a direction towards the front of the hill. Between the ſtony ſtrata are many clefts, in which pigeons build their neſts. It was awful to behold the abrupt rocky wall on the ſide of the

mountain, projecting many fathoms in a perpendicular line above the abyſs. The lime-ſtone is of a light grey colour, and of a compact texture, but much broken. We perceived on the edge of the mountain ſeveral ſhrubs, roſe-buſhes, and the *Hedyſarum argenteum*, and along the mountain we met with the *Centaurea orientalis* in abundance. Beſide theſe, I alſo remarked on the whole mountain the faded parts of the following plants, which delight in a warm ſituation, viz.

Roſa pimpinellifolia,
Rhamnus lycioides, ſometimes erect, and at others ſpread out in the form of a fan,
Aſphodelus luteus,
Euphorbia,
Inula enſifolia,
Euphraſia lutea, ſtill in flower,
Teucrium Chamædrys,
——— *Chamæpithys*,
Cornus mas,
Sedum Telephium,
——— *Hiſpanicum*,
——— *vermiculatum*,
Aſter atticus,
Chryſocome Linoſyris,
——— *biflora*,
Ciſtus Fumana,
——— *Helianthemum*,
Alcea ficifolia,
Parietaria judaica,
Cachrys Libanotis,
Bupleurum anguſtifolium,
Scabioſa ochroleuca,
Nepeta Ucranica,
Campanula Siberica,
Solanum Dulcamara,
Phyſalis Alkekengi,
Thymus Zygis,
Valeriana major,
Centaurea montana,
Aſclepias nigra,
Crambe maritimæ affinis,
Adianthum Ruta murar, &c.

From a ſlight inveſtigation of the ſulphureous water of the hot baths, ſituate upon the mountain Metſhuka, I am induced to make the following remarks.

The

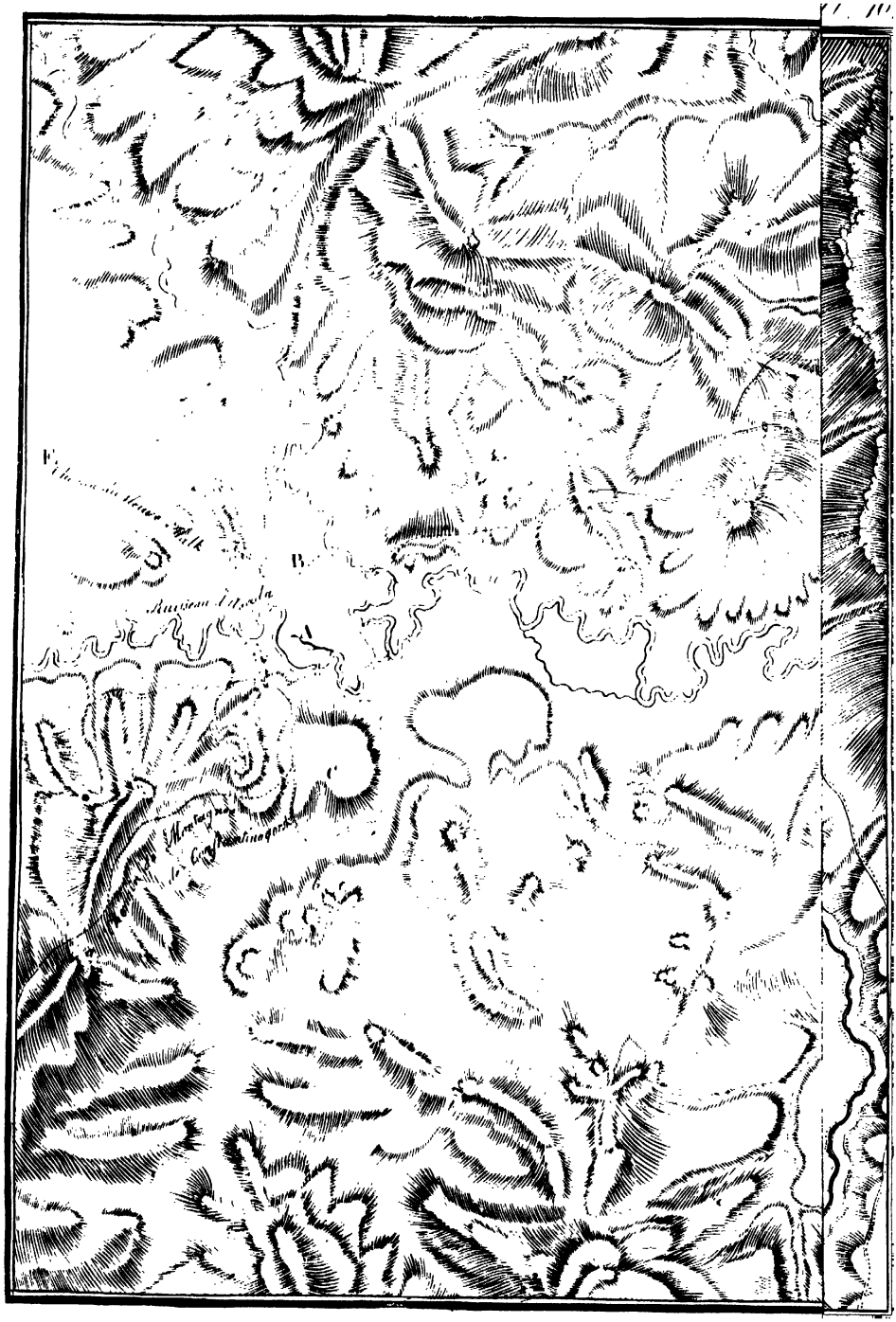
The ſmell of ſulphur, which is perceptible at a conſiderable diſtance round them, the ſnow-white tophus-ſtone, of a cryſtalline nature, which is here very frequent, and the flowers of ſulphur precipitated in the channels of the deſcending water, are ſufficient indications of its principal conſtituents. The heat of the water, though it has probably run over the whole length of the tophus ridge, is, in the moſt diſtant ſpring, hotter than the hand can bear, and cauſes the mercury to riſe in the thermometer of Reaumur fifty-ſeven and an half degrees, or one hundred and ſixty-two degrees of Fahrenheit. The abundant calcareous ſediment of the water is at firſt, and continues for ſome time after, as ſoft as pap, in which ſtate it is uſed by the Circaſſians and other tribes for whitening their houſes. In a bed of this ſoft ſubſtance, which is four or five inches thick, needles of the ſpath kind are gradually produced; and this cryſtallization becomes progreſſively more frequent, till at length the whole bed is converted into a heavy ſnow-white tophus, which exhibits pores and almoſt perpendicular needles in its fracture. Theſe beds are not ſo firmly cryſtallized as thoſe of the tophus ſtone of Carlſbad, but appear on breaking them to reſemble the cellular texture of bone. The ancient ſtrata of this mineral become progreſſively more firm, and acquire the conſiſtence of ſtone by the action of rain-water. The moſt recent ſtrata are ſtill looſe and friable, but acquire in time a more ſolid conſiſtence, though preſerved in a dry ſtate. This ſpecies of tophus is acted upon by the nitric acid, which cauſes a violent effervescence, ſo that the ſtone is completely and ſpeedily diſſolved: if expoſed to fire, it diſcovers no perceptible trace of ſulphur.

Every

Every pound of the laſt-mentioned ſulphureous water contains upwards of ſixteen grains of a white earthy ſediment, which is ſuddenly precipitated by a ſolution of alkaline ſalt. Silver, whether diſſolved or in ſubſtance, acquires a black colour from this water. A ſolution of mercury in nitric acid yields a yellow precipitate. When mixed with ſpirit of ſal ammoniac it coagulates like milk; with vitriolic acid it does not effervesce, but nevertheleſs precipitates a ſmall quantity of white earth. It imparts to blue paper a red tinge; but when treated with an infuſion of galls, it does not produce the leaſt black colour. A ſolution of borax occaſions a yellowiſh and flaky precipitate, which feels greaſy.

The water has a ſlightly ſtyptic, ſweetiſh taſte, and evidently contains a portion of alum, which renders it ſerviceable in diarrhœas and dyſenteries, particularly when the firſt paſſages have previouſly been evacuated. In rheumatic pains, cutaneous eruptions, and inveterate ulcers, it is of eſſential ſervice, if uſed as a warm bath. Gouty and paralytic patients have recovered by its uſe. In intermittent fevers, however, this bath ought not to be reſorted to, as it is liable to occaſion dangerous obſtructions.

It is ſaid that the abyſs on the mountain Metſhuka, as well as the longitudinal cleft on its anterior part, are the conſequences of an earthquake, which was perceptibly felt in this country about twenty years ſince, and that the ſpring ſupplying the baths had thus received a different and much deeper courſe. To judge from appearances, it is highly probable that ſeveral changes of a more ancient date have preceded; and we muſt admit that an incalculable number of years were neceſſary to produce


B
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produce gradually the ridge of tophus-ſtone, in its whole extent. The principal ſituation of the fire from which the ſpring derives its heat and conſtituent parts, is doubtleſs in the deep cavity of the mountain Metſhuka, which appears to contain ſeveral hollows in its vitals, as is evident from the gulph before deſcribed. The Beſhtau likewiſe produces a hot ſpring, though inferior to the former, but which I had no opportunity of examining.

As it was my intention to explore this mountain, I aſcended it for that purpoſe on the 13th of September. The Beſhtau is frequently enveloped in clouds to its very baſe, and its ſummit even appears to project above them. It is ſituated on a level and very extenſive eminence, riſing much above the current of the rivers Kuma and Podkuma, together with ſeveral adjacent mountains, among which the Metſhuka, juſt deſcribed, is one of the neareſt and moſt conſiderable. This eminence preſents no ſpecies of rock, except the very ancient lime-ſtone, which forms the whole of this mountainous tract, and has ſcarcely any petrifactions: it occupies the whole ſpace between the two rivers, and produces no trees, but thoſe growing on the four contiguous mountains. In the back ground, they are connected by what is called the aſſes' ridge, and form between them a large glen, or valley, from the midſt of which, and the loftieſt of the whole ſpecies, riſes a fifth, reaching the clouds with its ſummit: this is of a conic, or rather angular form, and ſo narrow on its top, that ſcarcely ten perſons have room to ſtand by the ſide of each other. From its ſummit ſeveral narrow ridges extend towards the four adjacent mountains. Hence, from this concatenation, the mountain has juſtly received the name of Beſh-

tau,

tau, or the five-mounts. Its profile is diſtinctly repreſented in the back-ground of the ſeventeenth Plate.—Towards the top of the high mountain the wood begins to decreaſe, and to degenerate into dwarf trees: the ſhrubs growing on the extreme or uppermoſt part, before we arrived at its barren ſummit, conſiſted chiefly of the beautiful *Azalea pontica*, by the Circaſſians called Aoi, and which thrives there in uncommon abundance, generally an ell and an half high, Ruſſian meaſure. The other ſpecies of trees and plants which, though at a ſeaſon ſo far advanced, were ſtill obſervable on the woody part of the mountain: and ſome of which, not being contained in the liſt of plants given by Güldenſtädt, are nearly the following:

Cratægus Aria,
——— *nigra*,
——— *oxyacantha*,
——— *monopyrena*,
Pyrus præcox,
——— *hyberna*,
——— *malus*,
——— *Cydonia*,
——— *torminalis*,
Meſpilus Germanica,
——— *Cotoneaſter*,
Prunus Ceraſus,
——— *avium*,
——— *fructu flavo, acidulo, ſubrotundo*,
Betula alba,
Carpinus Betulus,
Fagus ſylvatica,
Quercus Robur,
Acer platanoides,
—— *campeſtre*,
Fraxinus excelſior,
Ulmus pumila,
Populus nigra,
Cornus mas,
——— *ſanguinea*,
Sambucus nigra,
——— *Ebulus*,
Ribes Groſſularia fructu, obſcure rufo,
Rubus fruticoſus,
Roſa pimpinelloides,

Roſa

Roſa ſpinoſiſſima,	*Althæa officin.*
—— *canina*,	*Ononis lævis*,
Ruſcus aculeatus,	*Aconitum Anthora*,
Juniperus communis,	*Saponaria officin.*
——— *Sabina*,	*Sempervivum montanum*,
Spirea crenata,	*Onopordum*,
Chryſanthemum corymbiferum,	*Lithoſpermum purpurocærulum*,
Crambe orientalis,	*Gentiana Cruciata*,
Thymus Serpyllum,	*Impatiens nolitangere*,
Papaver orientale,	*Leonurus Cardiaca*,
Phlomis tuberoſa,	*Parietaria judaica.*

On the ſummit of the laſt-mentioned mountain is erected a high pyramid of flat ſtones, round which we obſerved dead branches of trees; and on which have been ſcrawled ſome characters in the Tartar language. The moſt convenient road to aſcend this ſummit is that along the eaſtern ſide of the principal mountain. The wood does not uniformly extend over the foot of the mountain, but ſtretches farther on its northern ſide, where it continues beyond the vallies bordering on the adjacent heights; while towards the Eaſt the ſoil is covered with trees as far as the mountain Metſhuka. The hills called Danitla and Sheepſikai alſo produce much wood, the *Beſhtau dikako*, on the contrary, which is ſituated near the banks of the Kuma, is entirely barren. From the ſummit of the Metſhuka, we obſerved that the mountainous tract which connects the Beſhtau with the principal mountains, runs chiefly in a direction with the ſtream of the river Kuma, between which and the Kuban the eminences riſing progreſ-

ſively, extend towards the South-Weſt, till they unite with the Elburus, ſituated in this country. The moſt conſiderable of the mountains which form a chain with the Elburus are, Ketſhergan, Barmamut, and Auar-ſetſh, which lie near the ſources of the Kuma and Podkuma; between theſe and the Bakſan there are towards the Eaſt, Mount Urdi and the mountains of Kandſhall, as well as ſeveral others. Towards the North and Eaſt of the Beſhtau an extenſive plain preſented itſelf to the eye; nay, in clear weather, we could even ſee as far as Kiſlar, and the Caſpian Sea.

According to the obſervations of Profeſſor Lovitz, made in the month of September, the barometer near the Podkuma was, at thirty-five minutes paſt one, at twenty-ſix inches, five and one-third lines; the thermometer one hundred and thirty-ſeven degrees. At the foot of the ſuperior mountain, in the wood, at nineteen minutes paſt three, the mercury had riſen to twenty-five inches, one line ſeven-fifths; the thermometer one hundred and thirty degrees. On the higheſt ſummit of the mountain, at twenty-five minutes after four o'clock, the barometer ſtood at twenty-three inches, ten lines; the thermometer at one hundred and fifty degrees. The barometer on the ſummit varied in twenty-four minutes to one-tenth of a line. The map prefixed to this volume will give a diſtinct view of the geographical ſituation of the Beſhtau.

The Beſhtau, on account of its property of attracting the vapours of the atmoſphere, like all other calcareous mountains, is a complete barometer to the inhabitants of this country. As ſoon as the weather threatens to be rainy, it covers itſelf, in the phraſe of the mountaineers, as it were with a hat, or even becomes

becomes completely enveloped to its very baſe with a cloudy garment. But when the weather promiſes to be ſerene, the clouds gradually precipitate, and its ſummit is viſible and clear.